DRAFT ENVIRONMENTAL ASSESSMENT AND CLEAN WATER ACT SECTION 404 PUBLIC INTEREST REVIEW

MAINTENANCE DREDGING AND DISPOSAL

WESTHAVEN COVE SMALL BOAT BASIN

2018 TO 2027

WESTPORT, WA

July 2017

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Responsible Agency: The U.S. Army Corps of Engineers, Seattle District is the responsible agency for this federal navigation project.

Abstract:

In accordance with the National Environmental Policy Act (NEPA), this Environmental Assessment (EA) evaluates the impacts of maintenance dredging at Westhaven Cove Small Boat Basin. In accordance with Section 404 of the Clean Water Act, this integrated document also evaluates whether it is in the public interest to undertake the Federal action. The Westhaven Small Boat Basin is located in Westport, WA in Grays Harbor County on the southwest coast of Washington State. The basin is located on the south side of the entrance to Grays Harbor near Point Chehalis in Westport, WA. Following construction of an initial (northwest) entrance channel of the Westhaven Cove Small Boat Basin by the Port of Grays Harbor, the U.S. Army Corps of Engineers (USACE) assumed responsibility to complete remaining channels and thereafter maintain them. These boat basin channels are important to commercial, Tribal, and recreational fishing because they allow mooring of commercial and recreational vessels as well as the Quinault Indian Nation's Tribal fishing fleet. Additionally, the project supports a U.S. Coast Guard (USCG) station, which provides both search and rescue along the coast of Washington and is a training facility for the USCG. The Federal project consists of two entrance channels, an access channel, and a turning basin. To maintain the navigability in the project, the recommended plan consists of maintenance dredging up to approximately 75,000 cubic yards (cy) per dredge event over a ten-year period of 2018 through 2027, within the approved in-water construction window of July 16 through January 31. The preferred alternative for this project is dredging using a mechanical clamshell dredge. Dredged material from Westhaven Cove Small Boat Basin is suitable for unconfined open-water disposal and would be placed at either the Point Chehalis or South Jetty dispersive open-water disposal sites. The proposed project would not constitute a major Federal action significantly affecting the quality of the human environment.

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ACRONYMS AND ABBREVIATIONS

BE	Biological Evaluation
cfs	cubic feet per second
cy	cubic yards
CEQ	Council on Environmental Quality
USACE	U.S. Army Corps of Engineers Seattle District
CZMA	Coastal Zone Management Act
DMMP	Dredged Material Management Plan
DNR	Washington State Department of Natural Resources
DO	dissolved oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FY	Fiscal Years
DMEDP	Dredged Material Evaluation and Disposal Procedures User Manual
LTMS	Long Term Management Study
MLLW	Mean Lower Low Water
NEPA	National Environmental Policy Act
NIP	Navigation Improvement Project
NMFS	National Marine Fisheries Service
O&M	Operation and Maintenance
PBE	Programmatic Biological Evaluation
SEIS	Supplemental Environmental Impact Statement
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology

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1 PROPOSAL FOR FEDERAL ACTION

Under the Council on Environmental Quality (CEQ) regulations, 40 CFR § 1500.1(c) and 40 CFR § 1508.9(a)(1), implementing the National Environmental Policy Act (NEPA) of 1969 (as amended), the purpose of an Environmental Assessment (EA) is to "provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" on actions authorized, funded, or carried out by the Federal government, and to assist agency officials to make decisions that are based on understanding of "environmental consequences, and take actions that protect, restore, and enhance the environment." This EA evaluates the environmental effects of proposed maintenance dredging at the Westhaven Cove Small Boat Basin.

This document also integrates a review of factors underlying a determination of whether executing the project would be in the public interest, pursuant to Clean Water Act Section 404 and rules and regulations published as 33 CFR Part 335, "Operation and Maintenance of Army Corps of Engineers Civil Works Projects Involving the Discharge of Dredged or Fill Material into Waters of the U.S. or Ocean Waters"; 33 CFR Part 336, "Factors to be Considered in Evaluation of Army Corps of Engineers Dredging Projects Involving the Discharge of Dredged Material into Waters of the U.S. and Ocean Waters"; 33 CFR Part 337, "Practice and Procedure"; and 33 CFR Part 338, "Other Corps Activities Involving the Discharge of Dredged Material or Fill into Waters of the U.S."

Congress initially authorized construction of the breakwater features of the Westhaven Cove Small Boat Basin in 1948. Construction commenced in 1952 and remaining channel features were constructed in 1979. The USACE proposes to conduct maintenance dredging in the Westhaven Cove Small Boat Basin. There are several rivers that flow into Grays Harbor, including the Chehalis River, the Humptulips River, and the Hoquiam River. These rivers and the adjacent Pacific Ocean deposit millions of cubic yards of sediment annually into Grays Harbor resulting in an embayment with considerable dynamic shoaling. The communities of Westport, Aberdeen, Hoquiam, and Cosmopolis (all combined are served by the Port of Grays Harbor) are all located near the mouth of the Chehalis River at the eastern end of Grays Harbor. Up to a total of 75,000 cy of dredged material per dredging event may be dredged and disposed at two disposal sites over a ten-year period of 2018 to 2027. This amount is based on a survey done in 2014.

1.1 Location of the Proposed Action

The Westhaven Cove Small Boat Basin is located in Westport, WA in Grays Harbor County on the southwest coast of Washington State. It is home to Westport Marina and USCG Station Grays Harbor (Figure 1). Grays Harbor is located on the coast in southwest Washington. The western entrance to Grays Harbor is approximately 50 nautical miles north of the entrance to the Columbia River.

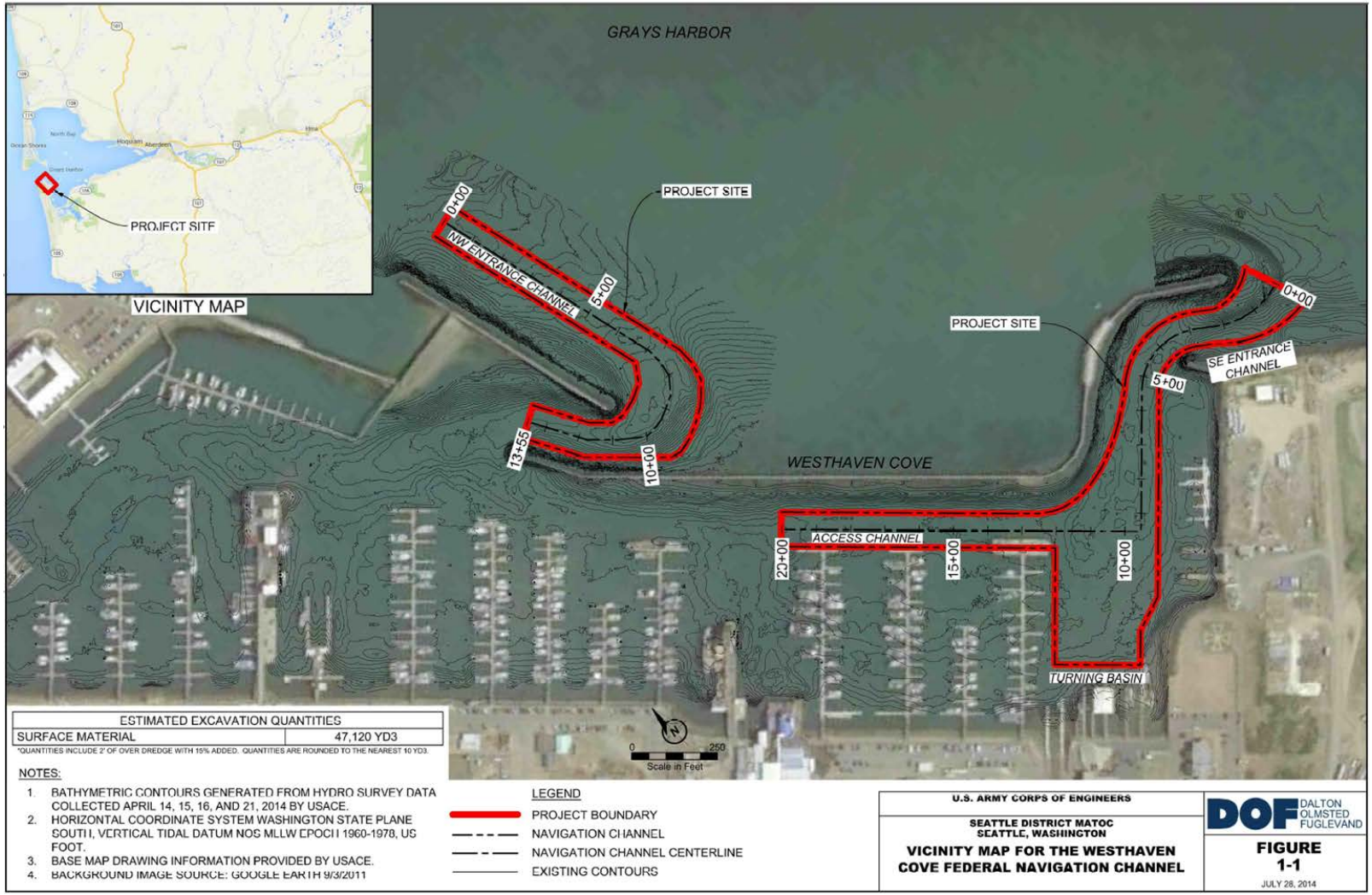

Figure 1. Navigation channel features at Westhaven Cove Small Boat Basin in Westport, WA

1.2 Authority

Breakwater facilities enclosing the Westhaven Cove Small Boat Basin were authorized by the Rivers and Harbors Act of 30 June 1948 (Pub. Law 80-858, 80th Congress, 2nd Session). Once the Port of Grays Harbor completed construction of the initial (northwest) entrance channel and the first component of berthing facilities within the boat basin in 1952, the United States assumed thereafter the obligation to maintain that 100-foot-wide entrance channel to a depth of -16 feet MLLW. Under the authority of Section 107 of the Rivers and Harbors Act of 1960 (Pub. Law 86-695, 86th Congress, 2nd Session), as amended, in 1979 the Corps constructed a second (southeast) entrance channel, a central access channel within the boat basin, and a turning basin, along with additional improvements to the breakwater facilities. All channel segments and the turning basin footprint are maintained to an authorized depth of -16 feet MLLW.

1.3 Purpose and Need

The purpose of the project is to maintain authorized depths at the two entrance channels, access channel, and turning basin of the Westhaven Cove Small Boat Basin for the safe transit of vessels. Maintenance of these basin waterways is important because the commercial and Tribal fishing fleets moored in the marina served by this basin are critical to the local economy. The USCG station serves as a search and rescue and training facility. Continued access is needed to transit safely in response to Search and Rescue missions off the coast of Washington. The eastern entrance channel was last dredged by USACE in 1998 with 40,464 cy removed from the channel, access lane, and turning basin. The western channel has not been dredged since it was constructed. Based on the survey collected in 2014 (USACE, 2014a), the majority of the shoaling is in the access channel, turning basin, and eastern entrance channel and is impacting safe navigation in and out of the Westhaven Cove Small Boat Basin by commercial, tribal, and private recreational boats and the USCG. As of 2014, the volume above authorized depth is approximately 43,000 cy, with controlling depths of -10.4 feet in the western channel and -11.2 feet in the eastern channel. Shoaling locations and amounts change over time and would be evaluated prior to each dredge event.

2 ALTERNATIVE ACTIONS

2.1 No Action

Under this alternative the USACE would not dredge Westhaven Cove Small Boat Basin entrances, access channel, or turning basin. This alternative would result in no effects to the aquatic environment. However, the Westhaven Cove S mall Boat Basin entrance channels would continue to accumulate sediments, which continue to reduce the depths of the entrance channels to less than the authorized and implemented depths, greatly increasing navigation safety issues, and restricting use by ocean going vessels. This would have a significant negative effect on the local maritime economy and the USCG mission. The no-action alternative does not meet the project purpose and need. Nevertheless, the no-action alternative is carried forward for the sole purpose of comparative evaluation against the preferred alternative.

2.2 Clamshell Dredging and Disposal (Preferred Alternative)

The Westhaven Cove Small Boat Basin includes the Northwest (NW) Entrance Channel, Southeast (SE) Entrance Channel, an Access Channel extending into the center of the small boat basin, and a turning basin in the southeast corner of the basin at the USCG station. Breakwaters A, B, and C were also constructed under the same authorizations as delineated in Section 1.2.

See figures 2 and 3, below, for the channel widths and locations. See Appendix A for representative channel cross-sections. Dredging would be conducted during the in-water work window of 16 July to 31 January.

Figure 2. Westhaven Cove Small Boat Basin – NW Channel

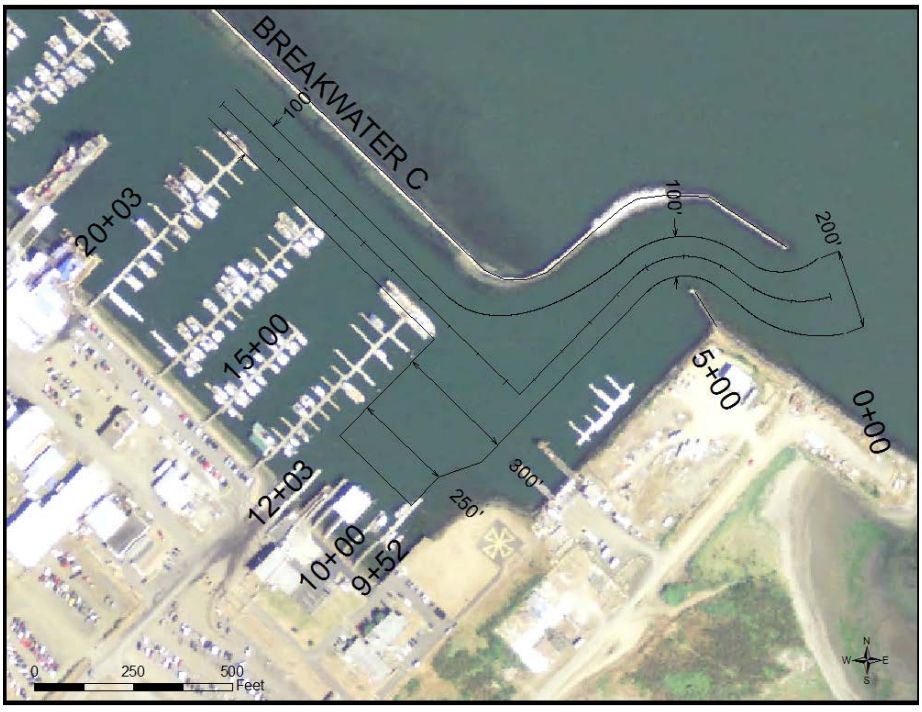

Figure 3. Westhaven Cove Small Boat Basin – SE Entrance Channel, Turning Basin, and Access Channel

The quantity of material proposed to be dredged from the entrance channels, access channels, and turning basin is up to 75,000 cy per dredge event. This estimated amount is necessary to achieve authorized depths and accomplish the purpose and need. A 2014 survey estimated the available volume to be approximately 43,000 cy; additional material will likely have accumulated since the last survey. The preferred dredge method would utilize a clamshell dredge for an estimated 14-21 days. Details on clamshell dredging methods are described below.

The authorized and implemented project channel depth is -16 MLLW. The USACE may authorize its contractor to dredge up to two feet of allowable over-depth in coastal regions (ER-1130-2-520), for a total depth of up to -18 feet MLLW. A suitability determination was made for the sediments in Westhaven Cove up to -18 feet MLLW, which expires in 2019, where all sediment tested met open water disposal criteria. There would need to be further evaluation of the suitability of Westhaven Cove sediments for dredge events that occur after 2019. Based on the outcome, this EA and its accompanying FONSI would be evaluated to determine if supplementation or amendment is necessary for dredging events past 2019. In light of a long-standing record of determinations that material to be dredged from the authorized navigation channel was suitable, reached in 1998 and again in 2014, it is expected that subsequent testing after 2019 will again result in a determination of suitability for unconfined aquatic discharge.

2.2.1 Dredging

A clamshell dredge operation includes a dredge barge with a deck mounted crane, a clamshell bucket, at least one tug boat, and at least one sediment transport barge. The clamshell dredge (a type of mechanical dredge) utilizes a bucket deployed by a crane, mounted on a dredge barge, to remove the sediment. The bucket is sufficiently heavy to sink into the substrate. The dredge bucket has two jaws that are hinged in such a fashion that the bucket is open while descending through the water column (Figure 4). After closing, the top portion of the bucket remains open as the bucket is retrieved. A “controlled lowering” of the bucket reduces turbulence and the amount of suspended sediment generated. After the bucket penetrates the substrate, the bucket is closed, taking a “bite” out of the substrate. The bucket is retrieved and swung over to a transport barge where the sediment is placed for transport to a disposal site. With the top and/or bottom of the bucket open, the probability of catching and retaining mobile organisms is minimal.

The dredge barge is equipped with vertical steel pipes, called spuds that are sunk into the substrate to anchor the dredge barge in one location. To move the dredge barge, the spuds are retrieved and a tug moves the dredge barge to a new location. The spuds are again sunk into the substrate to secure the dredge barge and dredging continues. Dredge barges are not self-propelled, but some dredge barges can, on occasion, move short distances by setting the dredge bucket into the substrate, retrieving the spuds, then pulling on the dredge bucket cable, and then inserting the spuds in the new location. During active dredging, a transport barge is tied to the dredge barge. Transport barges would be limited by the dimensions of the channel, and would likely range between 500 cy and 2,000 cy in capacity. Assuming approximately 50,000 cy are available, a range of 10 to 25 barge transits would be required to transport the estimated maximum volume of dredged material from the channel to the aquatic disposal sites. When the transport barge is full, a tug would take it to the disposal sites where the sediment is released.

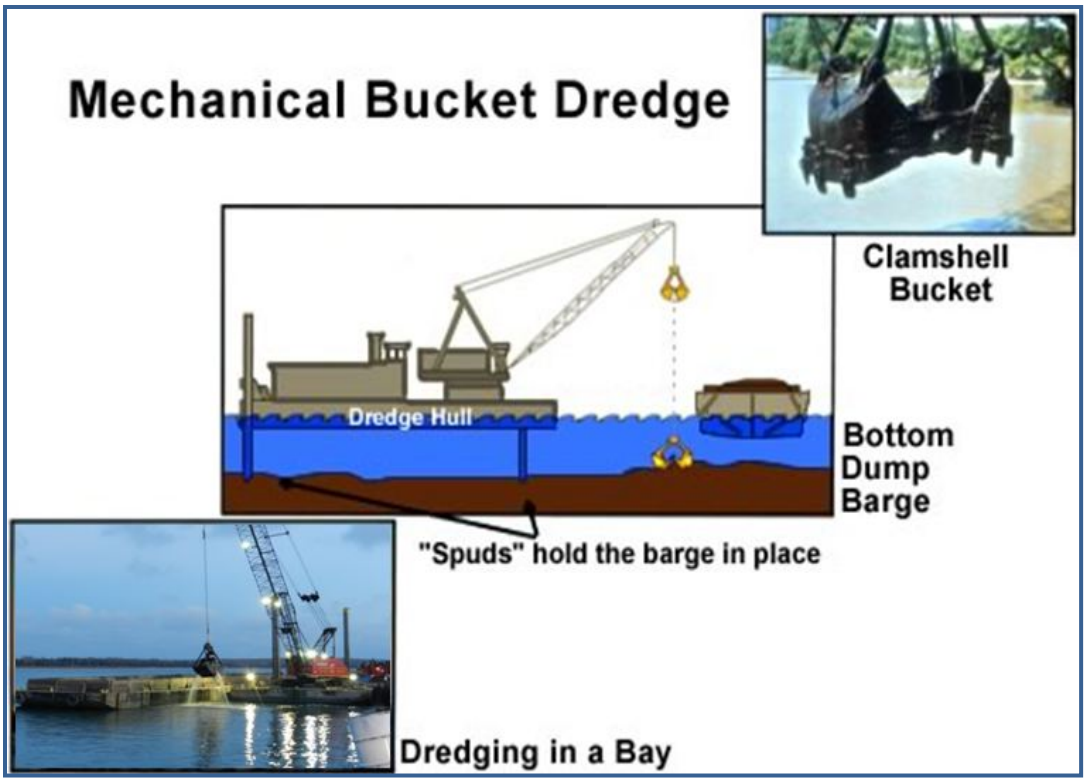

Figure 4. Rendering of a mechanical dredge barge and bottom dump barge, with photographs of a mechanical (clamshell) dredge bucket and an operating mechanical dredge barge.

2.2.2 Disposal

Disposal of dredged material would occur at two designated disposal sites: Point Chehalis and South Jetty. These sites have been designated by the Washington Department of Natural Resources (DNR) and are public, multi-user, unconfined open water dredged material disposal sites located directly adjacent to the navigation channel. Both sites are considered to be dispersive, in that sediments move within and through these sites as described below. See Figure 5 for the location of these sites. A brief summary of sites is presented below:

Point Chehalis: The depth of this site varies between –50 to –80 feet MLLW. It is a dispersive site subject to high wave energy and strong, predominantly westward, currents. The irregular bottom consists of fine to medium-sized sand grains of marine origin. Historically, this site has been deeper. Charts that predate jetty construction show depths of –100' MLLW in this area. Over 40 million cy of dredged material have been placed in this area since 1977, at an average rate of about 1.2 million cy/year since 2000. Annual survey records indicate that approximately 75 % of material disposed of at this site erodes during the dredging period, and that another 15 % erodes during the following winter. Bathymetric surveys indicate that most of this eroded material moves seaward. The further detail provided in the SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b), regarding the parameters and characteristics of the Point Chehalis site, is hereby incorporated by reference. Disposal at this location is intended to reduce erosion near the Point Chehalis revetment and groins. The Point Chehalis site is the most heavily used disposal site in Grays Harbor.

South Jetty: The depth of this site varies between –40 to –60 feet MLLW. This area is subject to strong tidal currents, predominantly westward, that sweep along the jetty toe. The site is dispersive, with seaward erosion of disposed material generally occurring rapidly; historically during dredge years with heavy site use sediments were observed to mound on the east side of the site. To avoid mounding, the site has been carefully managed by strictly limiting allowable dump areas and quantity of dredged material placed. The irregular bottom consists of fine to medium-sized sand grains of marine origin. Placement of dredged material at this site is necessary to prevent scour and undermining of the South Jetty's toe. The further detail provided in the SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b), regarding the parameters and characteristics of the South Jetty site, is incorporated by reference.

For open water disposal, the transport barge generally releases its load by opening the bottom along the long dimension of the barge (split hull barge) or opening bottom hatches (bottom dump barge). In both cases, the material is released below the surface of the water. Transport barges have seals on the operable surfaces to minimize sediment loss during transport. The USACE does not allow dredge contractors to fill transport barges to the point where dredged material and/or water are spilling over the sidewalls of the transport barge or allow excessive loss through faulty door seals, and requires the barges to have overflow protection.

In 2014 Westhaven Cove Small Boat Basin sediments were tested and approved for unconfined open water disposal under the guidelines of the Dredged Material Management Program (DMMP) administered by the USACE, EPA, Washington Department of Ecology (Ecology), and DNR. Materials are predominantly a mixture of silt and sand (approximately 88%), with minor fractions of gravel and clay (USACE 2014a).

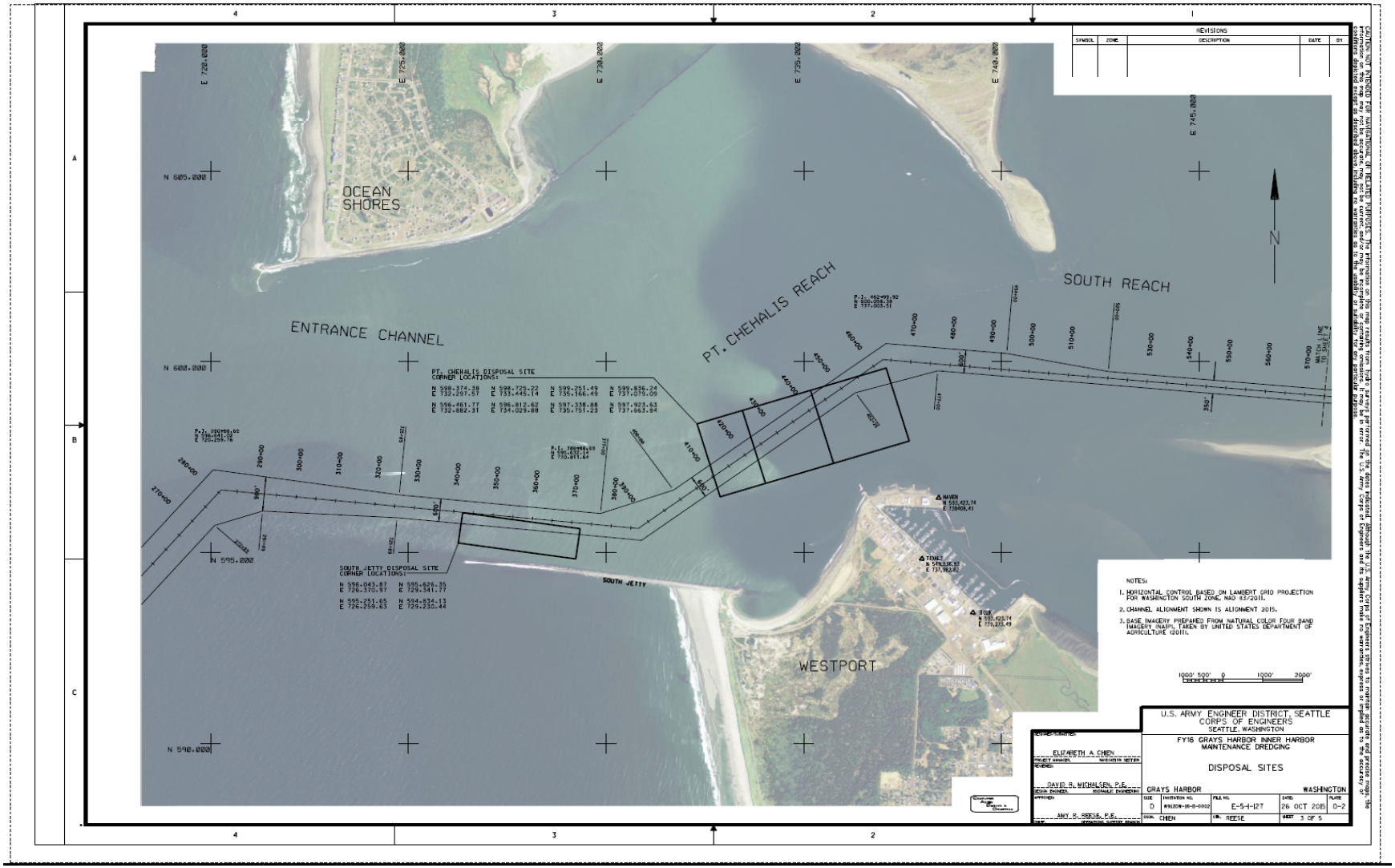

Figure 5. Point Chehalis and South Jetty Disposal Sites

2.3 Hydraulic Dredging and Disposal

This alternative would dredge the same amount of material from the same locations as the clamshell alternative. However, a hydraulic dredge would be used instead. This method also would meet the project's purpose and need. Below is a description of hydraulic dredging.

2.3.1 Dredging

A hydraulic pipeline dredge employs a barge mounted centrifugal pump, intake pipe outfitted with a cutterhead, and a discharge pipe. (Figure 6 and Figure 7). The intake pipe is made of steel and is attached to the pump via a flexible joint. A rotating cutterhead is attached to the intake end of the pipe and is used to "agitate" sediment into a slurry. The intake pipe is suspended from a structure by an "A" frame, also known as a "ladder," fixed to the barge. The cutterhead and intake pipe are attached to the narrow end of the ladder and are lowered to, and in some cases, into the substrate. The depth of the cutterhead is controlled by raising and lowering the cutterhead. The depth a hydraulic pipeline dredge can reach is determined by the ladder length and the pumping (lifting) capability. The cutterhead is generally three to four times the diameter of the intake to the pipeline. As the cutterhead rotates and cuts into the substrate, suction created by the pump draws water and sediment into the intake pipe. A 12-inch dredge might have a 36-inch to 48-inch diameter cutterhead. The size of a cutterhead dredge is determined by the diameter of the outlet pipe of the dredge.

The machinery that powers the hydraulic dredge is located in the barge (Figure 6). To function properly, the hydraulic pipeline dredge must in-take a slurry of water and sediment. The dredge barge is not self-propelled but can be moved short distances using anchors and spuds. A small tender vessel sets the anchors. A spud at the opposite end of the barge from the cutterhead is set and the anchor winches retrieve the anchor lines in such a way that the dredge pivots on the set spud sweeping the cutterhead across the area to be dredged. At the end of the sweep, another spud is set, the first spud is retrieved, and the anchor line process is repeated sweeping the cutterhead across the area to be dredged in the opposite direction. In this fashion, the dredge moves forward. A tender vessel redeploys the anchors as needed, again facilitating forward movement of the support dredge. A variation on this theme is a barge with a "walking" spud. In this case, a spud is located in a slot along the centerline of the barge at the end opposite the cutterhead. To move the barge forward or backward, the spud is used as a stationary point and the barge pushes or pulls against the spud. The anchors and anchor lines are still necessary to pivot the support barge during maintenance dredging.

To summarize, a hydraulic dredge operation includes a support barge with an "A" frame (ladder), a tender vessel or a tugboat to move the support barge into position.

Figure 6. Photograph of a small hydraulic dredge and its barge with the machinery that powers the hydraulic dredge.

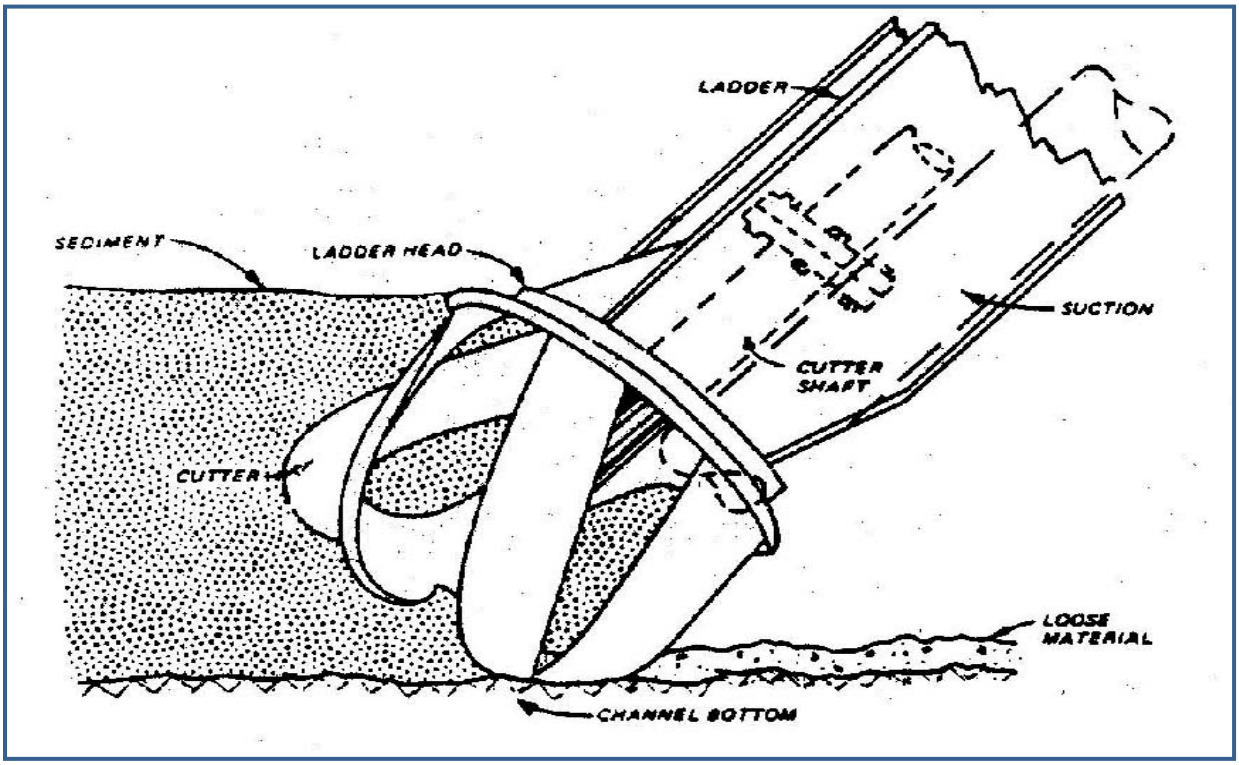

Figure 7. Drawing of a cutterhead in operation including the major components.

2.3.2 Disposal

Disposal would occur in the same two locations as the clamshell alternative using the same methods as the clamshell dredge method. For the purposes of the EA, it is assumed the material would be hydraulically dredged onto a barge in the boat basin and then transported to the disposal sites for placement via bottom-dump method similar to the description found in section 2.2.2.

3 ISSUES FOR COMPARISON OF THE ALTERNATIVES

This section provides information on issues relevant to the decision process for selecting the preferred alternative. Factors for selecting the recommended alternative include finding the alternative that would be the most cost effective, would be environmentally acceptable, and would meet the purpose and need of the project.

Impacts from the placement of dredged material at the two aquatic disposal locations (Point Chehalis, South Jetty) are addressed in the SEIS for the deepening and subsequent maintenance dredging of the Federal navigation channel listed below:

Grays Harbor, Washington Navigation Improvement Project General Investigation Feasibility Study Final Supplemental Environmental Impact Statement (USACE 2014b)

The Westhaven Cove sediments fall within the ranges of sediment compositions of the federal navigation channel reaches, so impacts to the disposal site would be similar to those analyzed in USACE 2013 and 2014b. The average composition of the Westhaven Cove dredge prism is 46% sand, which is between that found in the Hoquiam Reach (56%) and Cow Point Reach (22%). The composition of gravel is similar to that found in the Crossover and South reaches (<1%) and clay is most similar to the Crossover reach (roughly 10%). Material from Westhaven Cove is more of a marine nature than that of the upper reaches of the navigation channel, which are derived from riverine sources, but similar to the lower reaches, which are derived from both marine and riverine sources. Both disposal sites are dispersive and any fine grain materials from Westhaven Cove Small Boat Basin would quickly dissipate into the ocean environment in a westward oriented net transport. Additionally, materials from Westhaven Cove Small Boat Basin are designated for open water disposal and did not exceed State of Washington sediment quality standards (see Section 3.7 and Appendix B). Therefore impacts from disposal of these materials would be similar to the impacts from disposal of materials from the navigation channel. The following discussions of impacts from aquatic disposal of dredged material, contained in the 2014 SEIS mentioned above, are hereby incorporated by reference: estuary morphology, including sediment transport and Whitcomb Flats morphology; aquatic vegetation effects, including eelgrass and macroalgae; water quality effects on marine invertebrates and fish, from turbidity and change in dissolved oxygen levels, as well as underwater noise; ESA-listed species, designated critical habitat, and forage fish; historical and cultural resources; air quality and in-air noise; recreation; global climate change and global greenhouse gases; Indian treaty rights; and disposal site environment, bathymetry, and capacity conditions.

3.1 Geomorphology

The Federal navigation channel begins in the Pacific Ocean at the bar located at the entrance of Grays Harbor (station 0+00) up to the lower portion of the Chehalis River (station 1451+53.11). The Westhaven Cove Small Boat Basin is just south of the navigation channel near Point Chehalis on the Grays Harbor side of the Westport peninsula. The Chehalis River originates in the Willapa Hills, the Black Hills, and lowlands east of Interstate Highway 5 near Centralia. The Chehalis River does not have a glacial source of water. The Chehalis River generally flows westerly through conifer forests and open farmlands, and is the major contributor of sediment to the inner portions of the Grays Harbor. The majority of material in outer Grays Harbor is marine derived and distributed by waves and tidal currents.

Grays Harbor is a large shallow dynamic estuary located on the southwest coast of Washington. The majority (over 80%) of Grays Harbor is less than 20 feet deep (MLLW) and the Grays Harbor and Chehalis River Navigation Channel is the deepest portion of Grays Harbor east of the entrance from the Pacific Ocean. An excess of 50 % of Grays Harbor has a depth of about zero feet MLLW. There are two natural channels, one from the north, somewhat diffuse, with occasional depths slightly in excess of 20 feet MLLW, and one to the South, well defined, also with some depths slightly in excess of 20 feet MLLW. The landform to the west and southwest of Grays Harbor is predominantly flat terrain with low hills. Thus Grays Harbor is exposed to the predominant southwesterly winds, along with the ocean waves, supply the energy that causes movement of shoals. The dynamic movement of sediment within the harbor makes prediction of shoaling patterns difficult. Shoaling within the boat basin is derived from sediment that breaks through, either directly and/or around the breakwaters and the depositional pattern is difficult to predict given vessel traffic and historic dredging activities.

Alternative 1 - No-Action Alternative

This alternative would allow the geomorphology of Westhaven Cove Small Boat Basin to return to pre-construction conditions, which would result in the marina becoming unusable. This alternative would not meet the project purpose and need.

Alternative 2 – Clamshell Dredging

This alternative would have no effect on the character and grain size distribution provided by the adjacent Pacific Ocean and the rivers that drain into Grays Harbor, and Westhaven Cove Small Boat Basin.

Impacts to geomorphology associated with the open water disposal sites are addressed in the aforementioned SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b). Additionally, based on the 2014 sediment characterization the USACE determined that the dredged material is currently suitable for deposition in open water disposal sites and in-water beneficial use (Section 3.7 and Appendix B). In-water disposal contributes to the maintenance of the natural sediment transport system. Therefore, this alternative would not have a significant effect on geomorphology.

Alternative 3 – Hydraulic Dredging

Impacts to geomorphology would be the same as those described for clamshell dredging in Alternative 2 since the method of placement is the same.

3.2 Aquatic Vegetation

There is aquatic vegetation found in Grays Harbor, especially eelgrass (*Zostera marina*). The total area of eelgrass is about 11,000 hectares (approximately 45% of Grays Harbor) with about ½ of that area in dense stands (Phillips and Watson 1984). According to the WDNR eelgrass mapping tool, none is located in the marina, its entrance channels, or the disposal sites (WDNR 2001). However, observations are noted in the marina in patchy distribution (Burkle 2001). Anecdotal reports suggest that the eelgrass in the marina is non-native Japanese eelgrass (POGH 2015a), that grows at higher elevations than native eelgrass (Mumford 2007). There is also sea lettuce (*Ulva* spp.) and rockweed (*Fucus* spp.) growing on the surrounding breakwaters piling, and revetments. Non-floating kelp has also been documented in Westhaven Cove Small Boat Basin (Herrera 2015), but is not likely to occur within the entrance channels or turning basin where there is no rip-rap such as that occurring along the periphery of the basin and along the breakwaters, the depths are greater, and regular boat activity creates disturbance.

Alternative 1 - No-Action Alternative

No effects are anticipated as a result of this alternative.

Alternative 2 – Clamshell Dredging and Disposal

This alternative would have minimal effects on aquatic vegetation surrounding the Westhaven Cove Small Boat Basin because the dredging is conducted at depths vegetation generally cannot grow and regular vessel traffic prevents establishment. The most recent USACE bathymetry surveys from 2014 indicates that the shallowest depths are along the margins of the turning basin, access channels, and inner portions of the entrance channels. The shallowest depth in this survey is in the southeast corner of the turning basin at -9 feet MLLW, while most of the proposed dredge area is greater than -13 feet MLLW. These depths are likely shallower due to shoaling since 2014. There is no evidence of native eelgrass in the small boat basin, which typically grows at elevations above -10 feet MLLW (Mumford 2007). The Japanese eelgrass that has been reported anecdotally in Westhaven Cove grows at even higher elevations of +3 feet MLLW and greater (Ruesink et al. 2010). There are currently no maps with precise locations of these reported eelgrass beds in the marina, but given the disturbance to substrate that is created by boat traffic and greater depths in the channels and turning basin it is expected that no eelgrass is present in the dredge prism footprint. If it is present in the marina, it's likely along the shoreline and/or shallow areas not utilized by boats. Non-floating kelp need a coarser substrate than what occurs in the proposed dredged area, so no aquatic vegetation impacts are anticipated.

Impacts to vegetation in and around the open water disposal sites are addressed in the aforementioned SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b). The disposal sites were chosen in areas of no or limited vegetation. The lack of vegetation is primarily due to the high energy environments, depths, and ambient turbidity at the disposal sites.

Alternative 3 – Hydraulic Dredging and Disposal

This alternative would have the same effects to aquatic vegetation as Alternative 2 since the dredging and disposal footprint is the same.

3.3 Invertebrates, Fish and Wildlife

Grays Harbor has been affected by development, especially by the Federal navigation channel and the Westhaven Cove Small Boat Basin, but most of the aquatic area remains pristine. The minimal development of the aquatic area has allowed the continuation of significant crab and salmonid fisheries. Several USACE studies and monitoring have been conducted on the biological resources of Grays Harbor; these studies include the following:

- A multi-year bull trout sampling effort in the lower Chehalis River to confirm USFWS work windows are protective of this threatened species (R2 Resource Consultants 2006)
- Surveys of fish utilization of Half Moon Bay (R2 Resource Consultants 2005)
- Benthic invertebrate sampling in Half Moon Bay and South Beach, and an analysis of stomach contents of fish obtained as part of the Half Moon Bay fish surveys (SAIC 2005)
- Literature review and development of a study design for shorebird use assessments in the vicinity of the South Jetty (Raedeke Associates 2005)

3.3.1.1 Invertebrates

Benthic and epi-benthic communities in ports and marinas that are regularly dredged are typically in a continual state of re-colonization by opportunistic species. However, Westhaven Cove Small Boat Basin has not been dredged since one of the entrance channels was done in 1998. The last dredging event prior to that occurred in 1980. Therefore, it is likely that a well-established benthic community is present. Species composition is likely more tolerant due to boat activity and sub-optimal water and sediment quality issues associated with the marina. Clams and oyster beds are documented along Westport's inner shoreline, but are not likely in high densities within Westhaven Cove Small Boat Basin due to disturbance from boat activity, armoring, and associated water quality issues. Dungeness crabs occur within the marina, and are fished recreationally (WDFW 2015a).

3.3.1.2 Fish

The Westhaven Cove Small Boat Basin is a documented herring spawning area on both ends (WDFW 2015b). See Figure 8 and Figure 9. Herring commonly spawn on marine vegetation like kelp and eelgrass, but have also been observed spawning on other marine algae like rockweed and sea lettuce, as well as pilings, which occur in the marina. Herring have been observed in Grays Harbor from mid-May to September, particularly in the lower estuary (Simenstad and Eggers 1981). A 2001 survey of the Westhaven Cove Small Boat Basin done in late February documented spawning along the perimeter of many areas of the marina on various substrates including rockweed, sea lettuce, eelgrass, bare rocks, concrete, tires, and piles. Herring spawn observed near areas of the proposed dredging include the inside of breakwater A, adjacent to the northwest entrance channel, and in the southwest corner of the turning basin near the Coast Guard station (Burkle 2001).

Figure 8. Approximate documented Herring Spawning in Westhaven Cove Small Boat Basin, northwest (WDFW 2015)

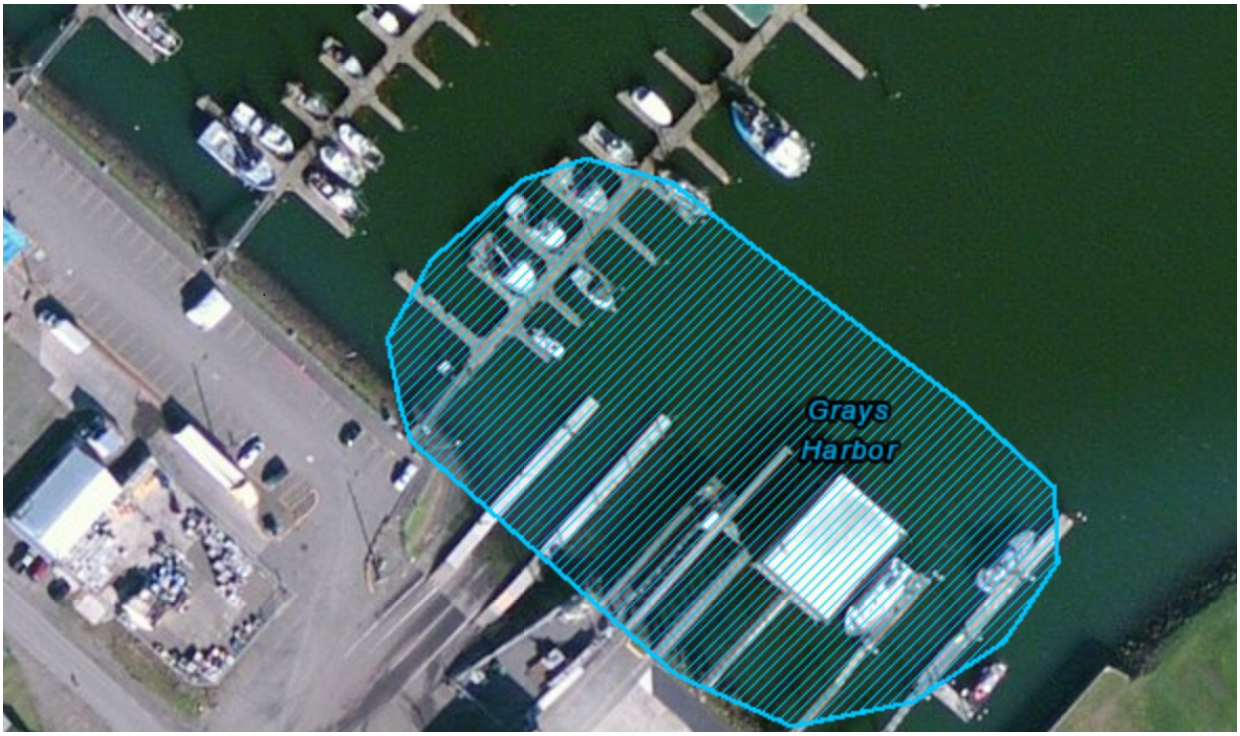

Figure 9. Approximate documented Herring Spawning in Westhaven Cove Small Boat Basin, southeast (WDFW 2015)

Pacific sand lance, which are found both in the water column and burrowed into the substrate (typically at night), are also likely to be present, although the basin is not documented as a sand lance spawning area. Other forage fish that may occasionally be present the marina are pacific sardines, northern anchovies, longfin smelt, and eulachon. Forage fish are an important prey base for salmon, bull trout, seals, sea lions, orcas, and a variety of marine birds (Pentilla 2007). Green sturgeon use Grays Harbor to forage in the summer months when salinity is higher (Moser and Lindley 2007). There is no evidence of green sturgeon spawning in Grays Harbor (NMFS 2005). Other fish that would occur in the marina are shiner and pile perch, and a variety of benthic-oriented fish such as sculpins, sandabs, soles, and starry flounder.

Six species of migratory salmonids occur in Grays Harbor, which include coho, Chinook, and chum salmon, steelhead trout, sea-run cutthroat trout, and bull trout. Some of these stocks originate/spawn in rivers within the Chehalis basin and others originate from rivers to the north and south (non-natal). Those that originate from outside of Grays Harbor occur in smaller numbers and are likely migratory juveniles in transit to feeding grounds along the coast and north Pacific, and/or non-feeding adults heading to spawning grounds in the Columbia River and other coastal estuaries. A small percentage of non-natal sub-adults and adults may be residents that stay along the U.S./southern Canadian coast, and use Grays Harbor for foraging. Bull trout are not known to spawn in the Chehalis basin, but do use Grays Harbor to forage (Goetz, pers comm., Dec. 28, 2015). Cutthroat spawn in the Chehalis basin, but have only been observed in low numbers (Sandell et. al 2011). See Table 1, below, for a summary of salmonid occurrence in Grays Harbor:

Table 1. Occurrence of Salmonid Species in Grays Harbor[1] (based on literature in Sandell et. al 2011, Hiss and Knudsen 1993, and WDFW 2015c). Black shading indicates adult presence, light gray indicates juvenile presence, and medium gray shading indicates overlap of adult and juveniles.

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Chinook[2]												
Coho[2]												
Chum[2]												
Steelhead												
Cutthroat Trout												
Bull trout												

[1] Table represents the majority of migrants, and does not account for early and late outliers that are fewer in number.
[2] Timing for stocks originating within the Chehalis Basin

3.3.1.3 Wildlife

Grays Harbor hosts a variety of shorebirds, raptors, and marine birds. More than 24 species of shorebirds occur in the area, including sandpipers, snowy plovers, great blue heron, Caspian tern, and dunlin. Waterfowl include western grebes, double-crested cormorants, brandts, brown pelicans, and a variety of gull species (Herman and Bulger 1981, Smith and Mudd 1976). More human-adapted species like gulls and cormorants are the most common inhabitants of Westhaven Cove Small Boat Basin. Bald eagles and hawks can also be found in the project area, more commonly in the winter months.

Gray and orca whale have been observed near the mouth of Grays Harbor. Gray whales will occasionally enter the harbor (Herrera 2015). Harbor and Dahl's porpoise occur within the harbor, but are unlikely to enter Westhaven Cove Small Boat Basin as they prefer open water. No harbor seal haul outs are documented in the marina, but they are likely to forage there intermittently. The closest harbor seal haul out is a mudflat northeast of the marina in Grays Harbor. California sea lions are observed seasonally, usually fall to late spring, hauling out on the docks and buoys in the marina. These individuals are always males and have been increasing in number since the 1950s. Females stay closer to their breeding grounds in California (Jeffries et. al 2000).

Alternative 1 - No-Action Alternative

This alternative would be the least disruptive to the invertebrates, fish and wildlife of Westhaven Cove Small Boat Basin and would allow the aquatic ecosystem to reach a climax condition.

Alternative 2 – Clamshell Dredging

3.3.1.4 Invertebrates

This alternative would disrupt the benthic invertebrate community in Westhaven Cove Small Boat Basin. However, given the infrequency of dredging, there would be sufficient time for these communities to re-establish. Past investigations completed for dredging work in Grays Harbor have produced data that indicates that disturbed benthic communities recolonize quickly (SAIC 2005). Clamshell dredges tend to have the lowest entrainment rate of crab. A 1979 study estimated an entrainment rate of 0.012 Dungeness crabs/cy; which was 5 percent of that of a suction dredge (Stevens 1981).

3.3.1.5 Fish

Impacts to fishes include the following: 1) entrainment, resulting in direct mortality, 2) physiological damage and elevated stress levels from suspended sediment, decreased DO, and elevated noise, 3) a behavioral response to flee associated with suspended sediment, decreased DO, and noise, and 4) interference with herring spawning behavior and egg survival.

During dredging larger fish would generally be able to avoid the dredge with the exception of burrowed sand lance. Sand lance are caught infrequently in Grays Harbor, but are quite abundant when they are (Sandell et al. 2011). If the dredge encounters a sand lance "hot spot" then entrainment could be high, which was shown to be the case for hopper dredging at the mouth of the Columbia River (Larson and Moehl 1988). However, hopper dredging entrainment is much higher than clamshell. Impacts to sand lance and other benthic fish would be temporary and localized with no detectable decreases in populations in and around Grays Harbor. Risk of

entrainment of pelagic oriented fish such as salmonids is quite low (McGraw and Armstrong 1988), given their ability to avoid the dredge.

Impacts from decreased water quality associated with dredging would be temporary in nature. Factors effecting the physiological responses such as gill damage and elevated stress hormones include exposure time (both duration of dredging and residence time of the fish in the project area) and the shape and character of the suspended sediments. To minimize physiological impacts of elevated suspended sediments and decreased DO the project will monitor water quality during dredging activities and meet State of Washington water quality standards.

Fishes' sensitivity to hearing varies, but most exhibit a response to sounds in the range of 50 Hz to 2 kHz, with a minimum threshold around 70 dB (Hastings 1995). The impacts vary by species, their behavior, and habitat. Further studies need to be done to document the behavioral responses of adult salmonids, particularly steelhead as they tend to migrate during established dredging windows.

Noise generated by clamshell dredges are characterized as continuous (or non-pulsed), since the elevated sound pressure occurs over seconds (not milliseconds, as is the case with pulsed noise) (Agness, NMFS, July 23, 2013). The following are noise thresholds for various forms of effects on salmonids for pile driving (impact and vibratory). Note that vibratory pile driving is also considered continuous:

- 150 dB_{RMS}[1] for harassment for continuous noise for fish of all sizes (Hastings 2002)
- 187 dB cumulative SEL[2] for injury of fish ≥ 2 grams[3] (NMFS et al. 2008)
- 183 dB cumulative SEL for injury of fish < 2 grams (NMFS et al. 2008)
- 206 dB_{peak}[4] for injury of fish of all sizes (NMFS et al. 2008)

A more recent study lists the following continuous noise[2] thresholds based on Popper et al. 2014:

- For fish with swim bladders that are involved in hearing (e.g. herring, sardines, and anchovies)
  - 170 dB_{RMS} for 48 hours for recoverable injury
  - 158 dB_{RMS} for 12 hours for TTS (Temporary Threshold Shift, or complete recovery of hearing loss)

- There is no direct evidence for mortality or potential mortal injury for continuous noise

- There are no continuous noise thresholds set for fish without swim bladders (sculpins) or those with bladders that are not involved in hearing (salmonids)

[1] Decibels root mean square over a period of time
[2] Decibels sound exposure level over a 24 hour period (cumulative)
[3] Injury thresholds are based on pile driving (pulsed noise)
[4] Peak sounds in decibels

There are no noise studies directly relatable to the conditions at Westhaven Cove, therefore extrapolation from other studies is necessary. Measurements of noise levels from clamshell dredging in the Snohomish River were as high as 164 dB re µP (dB_{peak}) and 164 dB_{RMS} for a clamshell dredge when the bucket hits the bottom (Pentac Environmental 2011). Another study in Cook Inlet recorded a peak sound level of 124 dB re µP (dB_{peak}) when the clamshell hit a coarse substrate bottom (Dickerson et al. 2001). It is likely that the $_{RMS}$ noise levels for this study were lower than the peak noise levels, although they were not disclosed. This Cook Inlet study also found that softer substrates are more effective at absorbing sound from the impact of the dredge bucket, and the peak sound measurements in these softer substrates did not exceed thresholds for continuous sound. The sound levels in the generated in the Snohomish River study do exceed the harassment and TTS thresholds for dB $_{RMS}$, but not injury thresholds for fish. Furthermore, the substrate in Westhaven Cove Small Boat Basin is generally softer (mostly clay and silt) than that of the Snohomish River (mostly sand). Therefore, sound levels (both in dB peak and $_{RMS}$) are likely to be lower than the Snohomish study and thresholds are not expected to be exceeded. A more detailed evaluation of how the substrate and confined conditions at Westhaven could influence noise is in Appendix C.

The only fish in the marina that would be vulnerable to the physiological effects of noise generated by clamshell dredging would be herring, and possibly sardine and anchovy, although the effects would be recoverable since the noise would not exceed the injury thresholds. The latter two species would likely occur in low abundance and the work window avoids peak herring abundance during the spawning period. There is potential for behavioral responses of all fish via harassment since there is potential for the sound levels to exceed the Hastings and NMFS thresholds, but these impacts would be temporary. Furthermore, the impacts of noise on fish would be insignificant since there is a finite community of fish that would be affected within the limited confines of the marina, which already has higher levels of ambient noise from vessel traffic, and the size of this affected sub-population would be minimal compared to communities in Grays Harbor and the adjacent Pacific Ocean.

In general, it is thought that adults are less vulnerable than juveniles (Simenstad, 1990). Impacts to other fish, such as shiner perch and flatfish, would be similar. Most fish are likely to avoid the dredge and its impact area and its effects on them are expected to be minimal. In addition, dredging would occur during the in-water work window of July 16 to 31 January, which avoids peak outmigration of juvenile salmonids.

There is potential to impact herring spawning behavior and egg survival through entrainment and increased turbidity. However, the dredging would occur during the work window of 16 July to 31 January and herring spawning typically occurs in February and March (Dionne, WDFW pers. Comm.), so impacts would be minor and insignificant. Also, the likelihood of overlap of dredging areas with herring spawning areas is low given the lack of suitable substrate and vegetation in the channels and turning basin.

Because of the avoidance of the dredge by mobile organisms, the avoidance of dredging during the herring spawning period, rapid recolonization by invertebrates, the low rate of crab entrainment, and the temporary impacts to water quality and noise this alternative would not have significant effects to these resources.

3.3.1.6 Wildlife

Waterfowl and other birds may be temporarily displaced, but impacts would be negligible since they have other areas in Grays Harbor to relocate to during the dredging activities. Bird species that regularly use Westhaven Cove Small Boat Basin are likely acclimated to noise and disturbance from boat traffic and other human activities.

There is a potential to negatively impact marine mammals, particularly because sea lions haul out on docks in the Westhaven Cove Small Boat Basin. Sea lions wouldn't be affected by underwater noise while hauled out, but both seals and sea lions could be while swimming around in the marina. It is likely that they could swim quite close to the dredge. Primary impacts to these marine mammals would come from elevated sound (underwater) which could disrupt foraging behavior, diving patterns, and social interactions.

NMFS has established peak and cumulative sound exposure level (SEL) thresholds for various marine mammal hearing groups for impulsive sound (impact pile driving and explosives) and non-impulsive (vibratory pile driving, sonar, dredging) for PTS (Permanent Threshold Shift, or the incomplete recovery of hearing loss) and TTS (Temporary Threshold Shift, or complete recovery of hearing loss) (NMFS 2016). The table below presents thresholds for seals and sea lions:

Table 2. Pinniped TTS and PTS Thresholds for Continuous Sound

Hearing Group	Impulsive Sound				Non-impulsive sound (continuous)	
	TTS threshold		PTS Threshold		TTS Threshold	PTS Threshold
	SEL[1] (weighted) (dB SEL)	Peak[2] SPL (dB SPL)	SEL (weighted) (dB SEL)	Peak SPL (dB SPL)	SEL (weighted) (dB SEL)	SEL (weighted) (dB SEL)
Seals	188	226	203	232	199	219
Sea Lion	170	212	185	218	181	201

[1] Cumulative sound exposure level weighted over a 24 hour period

As discussed in 3.3.1.5, dredging in the Snohomish River with a clamshell dredge generated peak noise levels as high as 164 dB_{PEAK} re µP and 164 dB_{RMS} (Pentac Environmental 2010), and another study in Cook Inlet recorded a peak noise level of 124 dB_{PEAK} re µP when the clamshell hit a coarse substrate bottom (Dickerson et al. 2001). The Snohomish River noise levels approach the TTS thresholds for continuous sound for SEL, but they do not exceed them. Furthermore, the TTS thresholds are in SEL, which is an average over a 24-hour period, and the sound levels from these studies were recorded as peak or $_{RMS}$. Therefore, it is likely that the SEL noise levels for these referenced studies is lower than the peak and $_{RMS}$ noise levels recorded, although SEL was not disclosed. Also, the Westhaven Marina has softer substrate (mostly

sand/silt) than that of both of studies and would likely produce lower sound levels. Noise propagation may behave differently in a confined space like Westhaven Cove, in which the surrounding rock from the breakwaters and shoreline armoring would reflect noise back into the marina waters. These confining features are not expected to amplify the noise or result in exceeding marine mammal thresholds due to the soft substrate. Finally, seals and sea lions in the area are likely accustomed to a higher level of underwater noise due to the vessel traffic. There are a number of commercial and recreational vessels that transit the area multiple times a day.

Overall, impacts associated with dredging to harbor seals and sea lions are expected to be localized, temporary, and of short duration, and animals would likely avoid the dredge and its impact area. Even if an individual(s) changes their behavior in response to noise generated from the action, the limited exposure time to dredge related noise would not result in any long-term impacts to the individual or seal and/or sea lion populations.

Impacts to invertebrates, fish, and wildlife in and around the open water disposal sites are addressed in the aforementioned SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b). As further described in section 3.6 and Appendix C, Westhaven Cove dredged material consists of fine sediments (clay/silt/fine sand) which would quickly disperse with ocean surge and currents in a westward direction, as do the fine sediments from the navigation channel, and are not expected to have any additional impacts beyond those in the evaluated in the SEIS.

Alternative 3 – Hydraulic Dredging and Disposal

There would be a higher entrainment rate of mobile organisms, especially crabs and benthic oriented fish like burrowed sand lance, sculpin, and flatfish, as a result of the suction and cutting associated with the hydraulic dredge. McGraw and Armstrong (1988) found staghorn sculpin to be the most numerous fish captured during hopper dredging in Grays Harbor; no salmonids or sand lance were observed. However, a hopper dredge is a larger scale operation than a hydraulic dredge. So, although entrainment per cubic yard of material would be the same as hopper dredging, overall entrainment is expected to be lower for the Westhaven Cove episodes of hydraulic dredging due to the smaller scale of the operation. Monitoring for noise generated from a hydraulic dredge in the Snohomish River usually hovered around 155-160 dB_{RMS}, but peaked to the uppers 170s when the spuds were placed (SAIC and RPS Evans Hamilton 2011). Another study of hydraulic dredging in Cook Inlet in Alaska measured noise at 100 to 110 dB_{RMS} (Clark et. al 2002). The Snohomish Study is below the injury threshold for fish, below the TTS threshold and PTS thresholds for pinnepeds (seals and sea lions), but above the harassment thresholds for all fish and TTS threshold for seals and sea lions and above the harassment threshold for fish with swim bladders related to hearing salmonids (see previous section Alternative 2 discussion for thresholds). However, as discussed in the clamshell dredging alternative, seals and sea lions in Westhaven Cove Small Boat Basin are likely acclimated to underwater noise and the work window would avoid peak salmonids abundance, as well as peak herring abundance and spawning periods. Impacts from turbidity at the point of dredging may be less than for clamshell dredging, since hydraulic dredges tend to suspend less sediment in the water column.

3.4 Threatened and Endangered Species

In accordance with Section 7(a) (2) of the Endangered Species Act (ESA) of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Several species listed as either threatened or endangered are potentially found in or around Westhaven Cove Small Boat Basin. See Table 3, below, for a list:

Table 3. The occurrence of ESA listed species and their critical habitat in the dredging area: "D" designated; "P" proposed; "N" designated, not in area.

Species	Listing Status	Critical Habitat
Coastal/Puget Sound bull trout	threatened	D
Lower Columbia Chinook salmon	threatened	N
Upper Willamette Chinook	threatened	N
Columbia River Chum	threatened	N
Eulachon	threatened	N
Green Sturgeon	threatened	D
Southern Resident Killer Whale	threatened	N
Marbled Murrelet	endangered	N
Leatherback Sea Turtle	endangered	D
Humpback Whale	endangered	None designated

Although no salmon originating from the Chehalis basin are listed, lower Columbia River Chinook salmon (*Oncorhynchus tshawytscha*), Upper Willamette River Chinook salmon, and Columbia River chum salmon (*O. keta*) juveniles may use its nearshore areas. Occurrence of southern resident killer whale in Westhaven Cove Small Boat Basin is extremely rare since they are not known to enter Grays Harbor. However, Chinook salmon are present in Grays Harbor and are a preferred prey item of southern resident killer whales (Ford et al. 1998 and Ford and Ellis 2005). Green sturgeon have a seasonal presence in Grays Harbor during the summer and early fall months (Adams et al. 2002), and eulachon eggs and larva have been observed in smaller numbers (Fisher, J., pers. comm., Dec 29, 2015). However, use of Westhaven Cove Small Boat Basin by these two species is not well documented.

Following the 1999 listing of bull trout the U.S Fish and Wildlife Service (USFWS) requested that USACE undertake a literature review and three-year sampling effort of the affected reaches to establish patterns of bull trout use. The purpose of this effort was to substantiate the new, condensed USFWS work window for bull trout in order to ensure it was fully protective of this

species. Fish biologists from R2 Resources sampled 12 sites in 2001, 2002, 2003, and 2004 (R2 Resources 2006). Acoustic tags were implanted in the bull trout captured in 2004, so additional data was collected in 2005. The results of the literature review and sampling effort indicate that bull trout are present in the lower Chehalis River beginning in mid- to late-February and continuing through mid-July. The tagged fish appeared to display a preference for the mainstem reach of the Chehalis River between the Elliott Slough Turning Basin and Cow Point Reach. No tagged fish were detected at a fixed receiver station in Half Moon Bay. This information confirms that by dredging during the window designated by USFWS (July 16 through January 31), USACE avoids likely adverse effects to bull trout, as well as salmon (since this bull trout work window is consistent with the salmon work window).

The other ESA listed species occurring in the project area that the USFWS administers is the marbled murrelet (*Brachyramphus marmoratus*). Marbled murrelet nest in old growth forests many miles from Grays Harbor, but do make daily trips to marine areas to forage.

Alternative 1 - No-Action Alternative

This alternative would be the least disruptive to ESA listed species and their designated critical habitat in Grays Harbor. This alternative would allow the aquatic ecosystem in Westhaven Cove Small Boat Basin to reach a climax condition and thus likely provide additional resources for ESA listed species.

Alternative 2 – Clamshell Dredging

Impacts to ESA listed fish are similar to those described in 3.3.1.5. This alternative would disrupt the benthic community in the Westhaven Cove Small Boat Basin. The ESA-listed species most likely affected by this condition would be green sturgeon because they are bottom feeders eating clams and other organisms on and in the substrate. However, the amount of benthic habitat disrupted by dredging the marina is extremely small compared to the entire benthic community of Grays Harbor. There would remain adequate benthic forage opportunity for green sturgeon. Other ESA-listed species such as juvenile salmonids are generally found in shallow nearshore waters. Peak migrations would be avoided by working within the designated fish window. The temporary increases in turbidity and potential for decreased DO during dredging are expected to be insignificant and would not have adverse effects on ESA listed species since the dredging would be conducted during designated work windows. Impacts to killer whale would be minimal, since their prey species, Chinook, would be largely avoided by dredging within the designated work window and the whales themselves occur outside of Grays Harbor, well away from any noise produced. Murrelet may be foraging in the nearby marine environment, but not in Westhaven Cove Small Boat Basin.

Disposal at the Point Chehalis and South Jetty sites was the subject of a consultation for disposal of materials at multiuser disposal sites in Puget Sound and Grays Harbor, which was completed in December 2015 with a conclusion of “may effect, not likely to adversely affect” salmonid ESUs, eulachon, marbled murrelet, southern resident killer whale, humpback whale, leatherback sea turtle, and green sturgeon. USACE submitted a separate combined project biological assessment to National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS), which includes Westhaven Cove Small Boat Basin clamshell dredging (the preferred alternative) and hydraulic dredging, to evaluate the impacts of proposed dredging and transport

of dredged material on species and habitat protected under the ESA. USACE effect determinations for dredging and placement activities are summarized in Table 4 and are either "may affect, not likely to adversely affect" or "no effect." The primary basis for the "may affect, not likely to adversely affect" determinations is because the dredging and disposal is conducted at times and locations when and where ESA listed species will likely not occur, and dredging and placement would not result in more than inconsequential and short-term alteration of critical habitat. In the case of the "no effect" determinations, the species and/or critical habitat occurs in the adjacent ocean environment, but generally not in Westhaven Cove Small Boat Basin.

Table 4. Determination of Effects of Maintenance Dredging of Selected Federal Authorized Navigation Channels, including Westhaven Cove, and Placement of Materials at Open Water Disposal Sites to ESA Listed Species.

Species	Dredging in Westhaven		Disposal at South Jetty and Point Chehalis Sites	
	Species Effect	Critical Habitat Effect	Species Effect	Critical Habitat Effect
Coastal/Puget Sound Bull Trout	NLAA	NLAA	NLAA	NLAA
Lower Columbia Chinook Salmon	NLAA	NE	NLAA	NE
Upper Willamette Chinook Salmon	NLAA	NE	NLAA	NE
Columbia River Chum	NLAA	NE	NLAA	NE
Eulachon	NLAA	NE		
Green Sturgeon	NLAA	NLAA	NLAA	NLAA
Southern Resident Killer Whale	NLAA	NLAA	NLAA	NLAA
Marbled Murrelet	NLAA	NE	NLAA	NE
Leatherback Sea Turtle	Not present	Not present	NLAA	NLAA
Humpback Whale	Not present	Not present	NLAA	None designated

"NLAA" may affect, not likely to adversely affect; "NE" no effect.

USFWS has concurred with the determination of NLAA for bull trout and their critical habitat. Concurrence from NMFS on other species is pending. A summary of the rationale for these determinations in Table 5, by species, is provided below:

Coastal/Puget Sound Bull Trout: To date, no bull trout have been observed in navigation channels or disposal sites during the maintenance dredging windows. However, in the unlikely event of bull trout presence during maintenance dredging and disposal, bull trout would be

expected to readily avoid the project area during operations and conservation measures would minimize the potential for direct or indirect effects to bull trout.

Lower Columbia River Chinook Salmon, Upper Willamette River Chinook Salmon, and Columbia River Chum Salmon: Any juveniles of these three ESUs that occur in Grays Harbor would typically be found in the nearshore areas of the outer portion of Grays Harbor. Dredging and disposal of materials at the open-water sites occurs mid-July through late-January in an area and time of year when juveniles of these species will likely not be found. There would be no effects to spawning habitat or behaviors as this habitat does not occur within the Grays Harbor basin.

Eulachon: There is a possibility that eulachon may be nearby in Grays Harbor during dredging of Westhaven Cove Small Boat Basin; however, it's unlikely given their very sporadic occurrence and low abundance in areas where work is proposed. The number of individuals taken would be minor compared to the entire run in Grays Harbor in any year when a run occurs.

Green Sturgeon: Due to a lack of spawning habitat in the Chehalis River basin, and juvenile life history characteristics, maintenance dredging and disposal would have no effect on juvenile (freshwater phase) green sturgeon or their spawning. Maintenance dredging would occur during periods when green sturgeon are present in Grays Harbor. By the time North American green sturgeon reach Grays Harbor, they are sufficiently large to be able to avoid the dredge. Prey resources could be lost due to their entrainment and habitat disturbances associated with maintenance dredging and disposal. However, green sturgeon are opportunistic predators that eat a variety of prey and switch foods as prey availability changes. Effects to the green sturgeon prey base would be minor and temporary given the small portion of their foraging range impacted and the wide variety of prey used by this species.

Southern Resident Killer Whale: There would be low probability of the species coming in contact with the areas affected by dredging and disposal activities. The dredging events would be infrequent and short-lived events, and killer whales are able to quickly leave the affected area. Therefore, the overall effects of dredge and disposal activities on killer whales would be insignificant.

Marbled Murrelet: Maintenance dredging and disposal will have no effect on nests or nesting habitat. Any disruption to foraging activities and marbled murrelet prey base are expected to be insignificant since marbled murrelet will be highly localized relative to their foraging range.

Leatherback Sea Turtle: Aerial surveys indicate that when off the Pacific coast, leatherbacks usually occur in continental slope waters so the likelihood of occurrence at the disposal site would be low, and the mechanisms of potential impact would be insignificant even if a sea turtle were present during disposal operations.

Humpback Whale: Due to the low occurrence of these whales around the disposal sites; the low probability of the species coming in contact with the areas affected by a disposal activity; the infrequent and short-lived nature of disposal events; and the ability of these mobile species to quickly leave the affected area, the overall effects of disposal activities on humpback whales would be insignificant.

Impacts to ESA listed species in and around the open water disposal sites are addressed in the aforementioned SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b). The sediments associated with Westhaven Cove are similar

in grain size to those of the Federal navigation channel (see section 3.6) and would quickly disperse by ocean surge and currents. Additional impacts beyond those in the evaluated in the SEIS are not anticipated.

Alternative 3 – Hydraulic Dredging

Impacts to ESA listed species would be similar to those described for clamshell dredging. The dredging footprint is the same, as is the work window to protect species. Impacts to ESA listed fish from decreased water quality would be less since hydraulic dredges tend to suspend less sediment. Entrainment of ESA listed salmonid prey species like sand lance would be slightly greater, due to a higher rate of entrainment from a hydraulic dredge.

3.5 Cultural Resources

For the current project, USACE has conducted a Washington Information System Architectural and Archaeological Records Data (WISAARD) search and reviewed internal documents related to the Westhaven Cove Small Boat Basin. In 1978, the USACE prepared an Environmental Impact Statement (EIS) for the Westhaven Cove Small Boat Basin Expansion project. The USACE consulted with the Washington State Historic Preservation Officer (SHPO) who concurred in a letter dated October 17th, 1978 with USACE findings of no historic properties affected. The results of the WISAARD search indicate that no cultural resource surveys or archaeological resources have been identified in or adjacent to the APE. A review of nautical charts indicated that the boat basin has undergone various dredging episodes since the Marina was constructed. In 1948, the area which was to be developed into the Marina ranged in depth between 3 to 14 feet below MLLW (US Coast and Geodetic Survey 1948). In 1952, the Port of Grays Harbor enlarged Westhaven Cove through dredging and constructed bulkheads. By 1970, the Marina was in operation for approximately twenty years and the depths near the entrance channels, access channel and turning basin ranged from 10 to 23 feet below MLLW (US Coast and Geodetic Survey 1970). Eleven years later in 1981, the depths near the entrances, access channel, and turning basin were -15 to -24 feet MLLW (US Coast and Geodetic Survey 1981). Given the fact the dredging would occur within the federally authorized dredging limits there is little likelihood of finding intact archaeological deposits.

Alternative 1 - No-Action Alternative

No cultural resources are known to exist in the in the project area. There would be no dredging and therefore, no effects.

Alternative 2 – Clamshell Dredging

This alternative would have no effect to cultural resources due to the fact that no cultural resources are known to exist in the project area. In addition, dredging would stay within the federally authorized dredge limits.

Alternative 3 – Hydraulic Dredging

This alternative would have no effect to cultural resources due to the fact that no cultural resources are known to exist in the project area. In addition, dredging would stay within the federally authorized dredge limits.

3.6 Water Quality

Ecology sets water quality standards based on water use and the water quality criteria for designated uses. Point Chehalis and the northwestern portion of Westhaven Marina is designated as a category five (polluted water) for dieldren in tissue. There are no exceedances of criteria for parameters related to the water column in the marina. The outer portion of Grays Harbor is listed as a category two (water of concern) for temperature, dissolved oxygen (DO), and bacteria (WDOE 2016).

Alternative 1 - No-Action Alternative

No effects are anticipated as a result of this alternative. There would be no dredging and no effects generally associated with dredging or disposal.

Alternative 2 – Clamshell Dredging

This alternative would have temporary effects to water quality in the vicinity of the active dredge operations. Sediments dredged from beneath the substrate surface could have some incompletely decomposed organic material that could consume DO when it would be exposed to the water column during dredging and disposal. Dissolved oxygen tends to decline in the vicinity of dredging operations when the suspension of anoxic sediments creates high chemical oxygen demand. Temporary decreases in DO associated with increased suspended sediments are possible in the immediate dredging plume area. During dredging and disposal, suspended sediment concentrations vary throughout the water column, with the highest degree of suspended sediment typically occurring at the point of contact of the dredge with the sediment, and at the release point of the barge. Concentrations typically decrease exponentially moving away from the dredging site both vertically within the water column and horizontally across the bottom, and decrease with the movement of current and tides. Areas of increased turbidity over background levels are expected to last only for a short duration (no more than a few hours) during the dredging operations.

Impacts to water quality at the open water disposal sites are addressed in the aforementioned SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b). The concentration of finer materials in Westhaven (31-56% silt) is close to that of fines at Cow Point (roughly 45% silt). Fines would quickly disperse at the disposal site and are not expected to have any additional impacts beyond those evaluated in the SEIS. There is potential for a drop in dissolved oxygen (DO) at the disposal sites from the placement of material at Westhaven Cove, which has been undisturbed for 18 years or more. However, the SEIS for deepening of the Navigation channel also addressed DO concerns associated with the placement of undisturbed materials. Therefore, additional impacts beyond those evaluated in the SEIS are not expected.

The Washington Department of Ecology (WDOE) regulates water quality through project-specific Water Quality Certification. USACE would comply with the applicable conditions of a water quality certification from WDOE and develop a monitoring plan based on criteria and conditions associated with the disposal of dredged material into waters of the U.S. This plan could include water quality monitoring, and slowing down and/or ceasing work, if necessary, to minimize impacts. Short-term (only during the 14-21 days of dredge operation) effects of increases in turbidity and decreases in DO could include avoidance of the dredging area by mobile aquatic organisms and reduced foraging opportunity during and immediately after dredging.

Alternative 3 – Hydraulic Dredging

Impacts to water quality would be similar to those described for clamshell dredging.. The impacts to water quality, including turbidity and DO, in Westhaven Cove from the dredging operations would be less with a hydraulic dredge since they tend to stir up less sediment in the water column. Impacts to the disposal environment would be the same as those described in the since the placement method of bottom dumping from a barge would be the same as those referenced for in the SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b) for alternative 2.

3.7 Sediment Quality

The Washington Department of Ecology lists the Westhaven Cove Small Boat Basin as a category 2 (water of concern) for bis(2-Ethylhexyl) phthalate in sediment (WDOE 2016, a common additive in PVC plastics. A 1999 study by WDOE found this substance to exceed sediment quality criteria in two locations in the Westhaven Cove. All other contaminants in the Westhaven Cove were below state criteria.

The requirements for determining the suitability of dredged material for unconfined, open-water disposal are documented in the 2016 Dredged Material Evaluation and Disposal Procedures User Manual. The standards in this manual are designed to be protective of organisms that come into contact with sediments, and concentrations and bioavailability of contaminants in sediments suspended during dredging and disposal are below levels that may cause harm to aquatic organisms. All marinas within Grays Harbor are as ranked as "moderate[5]." Sediments to be removed from the federally-maintained channel reaches within the Westhaven Cove Small Boat Basin were tested in 2014 and approved for open water disposal and beneficial use under the DMMP guidelines administered by the USACE, EPA, WDOE, and DNR. Average gradation are as follows: 11.2% clay, 45.9% silt, 41.6% sand, and 1.4% gravel. See Appendix B for the suitability determination. There were no detectable or non-detectable[6] exceedances of State of Washington sediment quality standards (SQS), including bis(2-Ethylhexyl) phthalate.

Alternative 1 - No-Action Alternative

No effects to this parameter would be anticipated as a result of this alternative.

Alternative 2 – Clamshell Dredging

This alternative would have minimal effect on sediment quality because the dredge operation does not have any component that would change the nature of sediments found in Grays Harbor through transfer of those materials from the basin to the Point Chehalis or South Jetty aquatic

[5] The Dredged Material Management Program agencies assign a 'rank' to each project depending on the type of project and potential sources of contamination. The ranks range from 'very low' to 'high'. Marinas are generally ranked 'moderate'. Since the Westhaven project includes an access channel and turning basin that are adjacent to mooring areas, the DMMP agencies treated it like a marina and assigned it a moderate rank. The rank of a project drives the sampling and testing requirements.

[6] A 'detected' exceedance typically means that the concentration exceeds a guideline value (usually the screening level) and is above the quantitation limit of the analytical instrument. A 'non-detected' exceedance means that the analyte wasn't detected by the instrument, but the quantitation limit is above the guideline value. This latter case results in some uncertainty, because it's possible the analyte is present at a concentration above the guideline value (but below the quantitation limit).

sites. Re-suspended sediments would settle to the bottom shortly after dredging activities. This conclusion of minimal effect is based on the suitability determination mentioned above, which expires in 2019, where all sediment tested met open water disposal criteria. There would need to be further documentation of the suitability of Westhaven Cove sediments for dredge events that occur after 2019. In light of a long-standing record of determinations that material to be dredged from the authorized navigation channel was suitable, reached in 1998 and again in 2014, it is expected that subsequent testing after 2019 will again result in a determination of suitability for unconfined aquatic discharge. If negative test results are obtained in future sediment testing the USACE would reopen this EA and its conclusion and reevaluate the finding of no significant impact (FONSI) as necessary. Since the Dredged Material Evaluation and Disposal Procedures are designed to be protective of organisms that come into contact with sediments, concentrations and bioavailability of contaminants in sediments suspended during dredging and disposal are expected to be below levels that may cause harm to aquatic biota.

Impacts to sediment associated with disposal of suitable material in the open water disposal sites are addressed in the aforementioned SEIS for the deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b). Sediments from Westhaven Cove would quickly disperse, similar to the materials placed from Cow Point, and are not expected to have any additional impacts beyond those in the evaluated in the SEIS.

Alternative 3 – Hydraulic Dredging

Impacts would be similar to those described for clamshell dredging since the dredge material and disposal site is the same.

3.8 Air Quality, Noise, and Artificial Lighting

The ambient air quality in Grays Harbor is generally good with few sources of pollution. Those sources are primarily local automobiles, local fishing vessels, a local pulp mill, and ocean going commercial cargo vessels. These sources of air pollution are minor compared to the size of the entire Grays Harbor area. To the north and east are logging and lumber mill operations that produce air pollution, but this and other air pollution generated in the area is moved out of the area by the prevailing winds from the southwest. Noise and artificial lighting are minimal and are associated with city of Westport and marina activities. Grays Harbor is in an attainment zone for all air quality standards.

Alternative 1 - No-Action Alternative

No effects to this parameter are anticipated as a result of this alternative.

Alternative 2 – Clamshell Dredging

The dredge and the tugs necessary to move the dredge and barges are diesel powered and thus contribute to air pollution; however, the amount of air pollution generated by the dredge operation would be minimal compared to any one of the large ocean going ships that traverse the Grays Harbor and Chehalis River Navigation Channel. The increases in air pollutants would be temporary, extending only during the short duration of dredging operations. Dredging and disposal activities are scheduled to be performed between July 16 and January 31 for about 14-21 days, when winds from the Pacific Ocean would likely disperse air pollutants quickly. Calculations of common pollutants based on the Sacramento Metropolitan Air Quality

Management District (SMAQMD) model for non-road emissions (2008) are presented in Table 5. These projections of emissions for the tugs moving the dredge are difficult to calculate due to the sporadic nature of the operation; in light of this uncertainty, Table 6 incorporates a conservative estimate of emissions from 24-hour-a-day operation for dredging and disposal over a 21-day period more than compensates for this uncertainty. These estimates are not intended as an exact calculation of the emissions associated with this project but rather as a means for comparison among the alternatives.

Table 5. Estimated emissions associated with clamshell dredging

Equipment Horse Power	Est hrs/day	Est days	tons CO	tons ROG	tons CO_2	tons NOx	tons PM	tons SOx
Dredge 500	24	21	0.09	0.06	64.39	0.66	0.025	1.77 E-06
Tug for barge 1000	24	21	0.81	0.20	164.35	2.16	0.07	1.83 E-06
Total			**1.0**	**0.26**	**228.74**	**2.82**	**0.11**	**3.6 E-06**

Even applying the conservative operating parameters, and in light of the temporary and occasional construction activities and rapid dispersal, these emissions would not permanently or significantly affect regional air quality.

Maintenance dredging would increase noise levels above ambient levels in the vicinity of the dredge and tugs during dredge operations. Noise and activity during dredging operations could temporarily disturb some animal species in and around the marina, as well as people utilizing the marina and local business on the waterfront, but this effect is expected to be limited in both space and time. Noise levels are expected to be minimal, with the majority being underwater. USACEwill comply with all City of Westport noise requirements.

Lights operating on the dredge would temporarily increase ambient lighting levels at night in the immediate vicinity of the dredge, but are not expected to adversely affect adjacent habitats beyond the immediate vicinity of the dredge operation. The marina and adjacent waterfront area is well lit, so increase in lighting beyond ambient conditions would be minimal.

Once the dredge operation ceases there would be no long-term effects from the noise or light of the dredge operation. The direct effects of this alternative would include slight temporary increase in air pollution, noise, and artificial lighting as compared with the no-action alternative. There would also an indirect effect of an increment of emissions associated with maintaining the current volume of vessel traffic within the Westhaven Cove Small Boat Basin, which is too variable to calculate, thus slightly increasing air pollution in Grays Harbor as compared with the no action alternative. Overall, the effects would be insignificant because of the small scale and short duration of the dredging and placement and the small size of the marina in comparison to the Washington Coastline.

Air quality, in-air noise, and lighting impacts associated with the open water disposal sites are addressed in the aforementioned SEIS for the deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b).

Alternative 3 – Hydraulic Dredging

Impacts would be similar to those described for clamshell dredging, particularly lighting. Estimates of air pollutants would also be the same as alternative 2, since similar equipment would be used over a similar duration.

3.9 Greenhouse Gas Emissions

Anthropogenic sources of greenhouse gases have been increasing over the past 150 years, and have reached a rate of contribution that is causing climate change. Greenhouse gas (GHG) emissions are cumulative by nature, with gigatonnes of annual global emissions (Raupach, 2007). GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and some hydrocarbons and chlorofluorocarbons. Primary sources of emissions in Grays Harbor include ship and boat traffic, vehicle traffic, and paper and saw mills.

Alternative 1 - No-Action Alternative

This alternative would not contribute greenhouse gases generated by any dredge operation.

Alternative 2 – Clamshell Dredging

The dredge and tugs would emit carbon dioxide, nitrous oxides, and water vapor (powerful greenhouse gases). If the project need is to be met then there is no practical alternative to hydrocarbon (primarily fossil fuel) powered dredge and tugs. An estimated 229 tons of CO_2 and 2.8 tonnes of NO_x would be emitted from this alternative (Table 5). These projections of emissions for the tugs moving the dredge are difficult to calculate due to the sporadic nature of the operation; in light of this uncertainty, Table 6 incorporates a conservative estimate of emissions from 24-hour-a-day operation over a 21-day period more than compensates for this uncertainty. Although GHG emissions associated with this alternative are not expected to significantly increase the rate of climate change and sea level rise, diesel fuel consumption by heavy machinery required for maintenance dredging, material disposal, and gasoline consumption for travel to the site are a part of world-wide cumulative contributions to change in climate by way of increases in greenhouse gas emission. In light of the short duration of the greenhouse gas emissions, and the unavoidability of use of diesel equipment to conduct the dredging, the difference in emissions between Alternative 2 and Alternative 3 is negligible in the context of all anthropogenic sources of greenhouse gasses, and Alternative 2 does not constitute a significant contribution of greenhouse gasses.

Alternative 3 – Hydraulic Dredging

Impacts would be similar to those described for clamshell dredging since similar equipment over a similar duration would be used.

3.10 Land Use and Aesthetics

The small town of Westport is directly adjacent to the Westhaven Cove Small Boat Basin, classified as medium to high density development. Emergent wetlands, grasslands, scrub/shrub and evergreen forests are also dispersed throughout the area (MRLC 2006).

Alternative 1 - No-Action Alternative

No effects to this parameter are anticipated as a result of this alternative.

Alternative 2 – Clamshell Dredging

This alternative would create a visual presence in the Westhaven Cove Small Boat Basin and the waterfront area, but it would be short-term and temporary. During maintenance dredging, the dredge, barges, and tugs would be visible to observers from the marina, waterfront area, and from the water. This would constitute a change in the visual appearance of boat traffic during the time of dredging. However, the addition of the dredge relative to all the boats in the marina would not be a significant change and would be temporary in nature. There would be no changes in land use in the terrestrial areas adjacent to the maintenance dredge area. No other impacts to land use and aesthetics would occur.

Impacts associated with the open water disposal sites are addressed in the aforementioned SEIS for deepening and maintenance dredging of the Federal navigation channel (USACE 2014b).

Alternative 3 – Hydraulic Dredging

Impacts would be similar to those described for clamshell dredging and the numbers of equipment and disposal methods would be the same.

3.11 Recreation

Westhaven Cove Small Boat Basin is used for mooring recreational sport fishing and charter boats and hosts the state's largest charter fishing fleet. The number of these boats increase during annual salmon runs. The marina and its docks are also visited by other tourists associated with surfing, clamming, and beach vacations. Whale watching boats also use the marina. A maritime museum, aquarium, and several seafood restaurants are located on the strip overlooking the marina (POGH 2015b). Dungeness crab pots are set within the marina (WDFW 2015).

Alternative 1 - No-Action Alternative

This alternative would not have any effect on recreation until such time that navigation and moorage in Westhaven Cove Small Boat Basin became difficult due to shoaling.

Alternative 2 – Clamshell Dredging

There would be temporary effects to recreation during dredging since boaters would be required to avoid the immediate area of the dredge and disposal barge for safety reasons. Boaters would have to navigate around the dredge and/or use the areas and entrance channel that are not being dredged. Crab pots would need to be set in areas of the marina that are not being dredged. Crab entrainment is low with a clamshell dredge, so impacts to the fishery in the marina would be minimal. Tourists may find the area visually unpleasing and noisy during these dredge operations. All these impacts would be short-term and temporary, and the dredging would result in long term benefits to recreation by providing safe access to moorage for recreational boats and charter fishing and whale watching vessels.

Impacts to recreation associated with the open water disposal sites are addressed in the aforementioned SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b).

Alternative 3 – Hydraulic Dredging

Impacts would be similar to those described for clamshell dredging since similar equipment would be used for a similar duration and the disposal method would be the same. Hydraulic dredges have a higher entrainment of crabs, but crab densities in the Westhaven Cove Small Boat Basin are likely much lower than the more optimal habitat in other portions of Grays Harbor. Therefore, no long-term impacts to crab populations and the Dungeness fishery are expected.

3.12 Hazardous, Toxic, and Radioactive Waste (HTRW)

A review of environmental databases was made to determine whether there are documented HTRW concerns at the Westhaven Small Boat Basin. A search of EPA's EnvironMapper online GIS database revealed no CERCLA sites at or within one mile of the marina (U.S. EPA 2015). Washington Department of Ecology's (WDOE) Facility/Site Database Map Search online portal shows no HTRW site at the site. A search of the WDOE database did reveal 30 upland sites with operational, waste disposal, and discharge permits within 1 mile of the marina (WDOE 2015). None of these sites is a reported release or HTRW cleanup site. See section 3.7 for additional information on testing results for Grays Harbor sediment.

Alternatives 1, 2, and 3:

There are no HTRW within one mile of the marina; therefore, effects of the proposed dredging project associated with HTRW would be insignificant, and no special consideration would be needed to address HTRW concerns at the site.

3.13 Local Economy

Historically, the economy of the Grays Harbor area depended on the timber industry with logging and sawmills, salmon fishing and the accompanying canneries, and shipping since locals built a spur to connect Aberdeen with the Northern Pacific Railroad. The economy has become depressed in recent decades with significant reductions in timber harvest and salmon fishing, the closure of saw mills and a pulp mill. Many of those employed in the area are dependent on the Westhaven Cove Small Boat Basin. Economic effects of disposal are addressed in the SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b); this discussion is incorporated by reference.

Alternative 1 - No-Action Alternative

This alternative would cause significant harm to the local economy because commercial fishing vessels, fishing and whale watching charters, and the U.S. Coast Guard fleet would not be able to effectively use the marina. This would likely result in significant job loss in the local area, which would thereby cause negative economic effects to the broader region of southwest Washington.

Alternative 2 – Clamshell Dredging

Minor disruption to boat traffic using the marina would occur during dredging and disposal; however, this action would keep the marina usable for the recreational, charter, and commercial fishing boats that depend on it. Work would be coordinated with the maritime community to allow affected parties to plan for the short-term and temporary disruption. USACE would also coordinate with the Harbor Safety Committee and ask the USCG to issue a notice to mariners.

Overall, the maintenance dredging would benefit the economy in that normal commercial activities would continue after the maintenance dredging is completed. Water-dependent businesses can plan for the temporary restrictions during dredge operations. Clamshell dredge operations entrain very low numbers of Dungeness crab so no reduction in the economic value of the fishery would occur.

Alternative 3 –Hydraulic Dredging

Impacts would be similar to those described for clamshell dredging. Hydraulic dredges have a higher entrainment of crabs, but densities in Westhaven Cove Small Boat Basin are likely much lower than the more optimal habitat in other areas of Grays Harbor. Therefore no long-term adverse impacts to crab populations and the Dungeness fishery are expected.

3.14 Tribal Treaty Rights

Native American tribes that may have interest in this project include the Quinault Indian Nation (QIN) based at Taholah, Washington, the Chehalis Indian Tribe located at Oakville, Washington, and the Shoalwater Bay Indians at Tokeland, Washington.

The concerns of greatest importance include treaty rights, especially rights to fish in the Grays Harbor area, access to plant materials used in making traditional crafts, preservation of sacred sites important in the practice of traditional religion, and preservation of fish habitat. Only the Quinault Indians have a reservation established by treaty, and they have adjudicated rights to off-reservation usual and accustomed fishing sites within Grays Harbor. The other groups have reservations established by executive order, but they do not have the same off-reservation treaty rights to take fish at usual and accustomed locations.

Alternative 1 - No-Action Alternative

This alternative would likely affect Tribal Treaty Rights by eventually reducing fishing vessel access to the Westhaven Cove Small Boat Basin. The Quinault Tribe moors their fishing vessel in the marina.

Alternative 2 – Clamshell Dredging

This alternative would continue maintaining authorized depths for access to Westhaven Cove Small Boat Basin. There are no active usual and accustomed fishing areas within the boat basin proper, that would be directly affected by the dredging process. Clamshell dredges have a low entrainment rate of crabs and fish. Therefore, no long-term impacts the Tribal fishery are expected. This alternative would not result in permanent changes in access to usual and accustomed fishing, shell fishing, or collecting areas and would maintain the use of Westhaven Cove Small Boat Basin for Tribal fishing. Effects of disposal on tribal treaty rights are addressed in the SEIS for deepening and subsequent maintenance dredging of the Federal navigation channel (USACE 2014b); this discussion is hereby incorporated by reference.

Alternative 3 – Hydraulic Dredging

Impacts are similar to those described for clamshell dredging since similar equipment would be used for a similar duration and the disposal methods would be the same. Hydraulic dredges have a higher entrainment of crabs, but densities in Westhaven Cove Small Boat Basin are likely much lower than the more optimal habitat in other areas of Grays Harbor.

4 MITIGATION AND MONITORING

The combination of mitigation measures avoids, reduces, and compensates for adverse effects of this project. Several effect avoidance, minimization, and compensation measures have been incorporated into the maintenance program:

- To avoid impacts to bull trout and out-migrating juvenile salmon, USACE would only dredge within the designated work window of 16 July through 31 January.
- For the preferred alternative, a clamshell dredge would be used to reduce entrainment of fish, shrimp, and crabs.
- A water quality monitoring plan would be developed that is consistent with the conditions and adheres to applicable criteria issued in the water quality certification from the Washington Department of Ecology associated with the disposal of dredged material into the waters of the U.S.

5 COORDINATION

USACE has coordinated with Federal and state agencies and tribes regarding maintenance dredging of the Westhaven Cove Small Boat Basin. Coordination was conducted with the following entities and agencies:

- Washington Department of Fish and Wildlife
- The Quinault Indian Tribe, Quileute Tribe, the Hoh Indian Tribe, the Shoalwater Bay Indian Tribe and the Chehalis Indian Tribe
- National Marine Fisheries Service
- United States Fish and Wildlife Service
- Washington State Historic Preservation Office
- Dredged Material Management Program
    - U.S. Army Corps of Engineers
    - U.S. Environmental Protection Agency
    - Washington State Department of Ecology
    - Washington State Department of Natural Resources

A notice of availability of this Draft EA will also be provided to the above list of entities and agencies.

6 CUMULATIVE EFFECTS

Cumulative impacts result from the “individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). NEPA requires the evaluation of cumulative impacts to assess the overall effect of a proposed action on resources, ecosystems, or human communities in light of past, present, and reasonably foreseeable future projects. The cumulative impact analysis includes actions by Federal, non-Federal, and private entities.

6.1 Baseline Conditions for Cumulative Effects Analysis

The historic habitats of the lower Chehalis River and Grays Harbor have been altered by previous dredging, diking, filling, and jetty and marina construction, industrial discharges, and other anthropogenic activities over the past century. These activities have resulted in loss of wetland and other intertidal habitats, conversion of shallow water habitats to deeper water, erosion and migration of sand islands, and a minor reduction in water quality. By one estimate, approximately 14,579 acres or 30 % of historic intertidal habitats have been lost (Smith and Wenger 2001). Degradation of ecological function associated with these changes has affected the capacity of these habitats to support fish and wildlife populations. While historic impacts have been detrimental to the natural environment, the cumulative effects of dredging on the human environment have supported economic use of the area by removing hazardous areas of shoaling, promoting commercial and recreational vessel access to the Port of Grays Harbor, and direct employment of many people by the Port of Grays Harbor and associated industries and businesses.

6.2 Past, Present, and Reasonably Foreseeable Future Actions

Annual maintenance dredging of the Federal Navigation channel by USACE is underway and likely to continue into the foreseeable future. Some level of annual maintenance dredging has occurred every year since 1910, but no new areas have been dredged and no new disposal sites have been designated since the late 1990s. Up to 1,725 acres are disturbed by USACE annual maintenance dredging, with an additional 697 acres disturbed by disposal of dredged material. This area is equivalent to approximately 12 % of the total acreage of subtidal habitat in Grays Harbor. Only areas previously designated as navigation channel, marina, or disposal sites are disturbed. Dredged material disposal practices no longer contribute to the conversion of intertidal wetlands to uplands.

The Port of Grays Harbor plans to conduct maintenance dredging of the marina area in the near future (no overlap occurs with proposed USACE dredging) and also conducts dredging in the commercial terminal berths. Impacts of any regulatory restrictions on Port dredging are similar to those of the USACE dredging. USACE will repair several thousand feet of the marina breakwaters and there is an ongoing effort the rehabilitate the Point Chehalis Revetment over an eight year period. In addition, there are currently 11 permitting actions in Grays Harbor pending with USACE regulatory, all of which are related to aquaculture and would therefore be located along the shoreline. Other USACE studies and activities in Grays Harbor are described in Section 6.2 subsections below.

6.2.1 Whitcomb Flats Section 111 Study

The DNR leases over 2,000 acres of state-owned aquatic lands in Grays Harbor for the purpose of oyster aquaculture. Many prime oyster lands in South Bay have been lost due to migration and erosion of Whitcomb Flats. The changes occurring at Whitcomb Flats are a result, in part, of the installation of the North and South Jetties. The jetties are causing a general deepening of the harbor inlet, as intended.

Section 111 of the Water Resources Development Act of 1968, as amended, gave USACE the authority to study and implement projects for prevention or mitigation of shore damages attributable to Federal navigation projects. Section 111 requires involvement of a local sponsor, a

state or local government agency willing to share in the cost of the project and accept responsibility for maintenance requirements.

After completion of the 2001 Grays Harbor and Chehalis River Navigation Project programmatic EA, DNR requested the USACE initiate a Section 111 study for Whitcomb Flats (Chris Behrens, USACE Planner, Pers. Com.). Seattle District staff visited the site and met with DNR staff and other stakeholders to determine whether there is a Federal interest in pursuing a Section 111 study. In February 2010, the USACE determined that there is a Federal interest. Around the same time, DNR requested that the project be suspended until State funding becomes available for their participation in further planning of the project under a feasibility cost share agreement.

6.2.2 Grays Harbor Long Term Management Study

Features of the Grays Harbor and Chehalis River Navigation Project include the navigation channel, the North and South Jetties, Westhaven Cove Small Boat Basin, and the Point Chehalis revetment. USACE's mission is to maintain all of these features in an environmentally acceptable manner and in the most cost-effective manner possible, in order to provide safe navigation in Grays Harbor. The Seattle District USACE has been conducting a study, the Grays Harbor Long Term Management Study (LTMS), to identify a technically feasible, cost-effective, environmentally acceptable, and publicly acceptable solution that minimizes risk to operation and maintenance over the next 50 years of all aspects of the Grays Harbor and Chehalis River Navigation project. The LTMS evaluates the implications of the persistent loss of sediment from the Grays Harbor entrance (including North Beach and South Beach), which is expected to continue indefinitely. Without intervention, shoreline erosion near the South Jetty would eventually breach the landmass adjacent to the jetty.

Four alternatives were screened through the LTMS' Multi-Criteria Decision Analysis process. USACE has conducted interim actions since 1993 when the area of land between the South Jetty and Half Moon Bay was breached. The USACE's current, interim practice – pending completion of the LTMS – is based on two pre-designed triggering criteria and includes contingent placement of sand to avert undue risk of a breach in the spit of land adjoining the South Jetty, as is further discussed in Section 6.2.2.1. Preparation of a separate NEPA document would occur simultaneously with formulation of a recommended plan.

6.2.2.1 Contingent Interim Action

Until an LTMS is comprehensively evaluated and a preferred alternative implemented, USACE will continue to monitor the vicinity of the South Jetty and, in order to preserve the status quo, place material in strategically selected areas of the "breach fill" area on the spit adjoining the South Jetty, as needed to protect against undue risk of a breach recurring in the vicinity of the South Jetty due to continued erosion. Periodic mechanical rehandling of material from the Half Moon Bay direct upland beach nourishment site or other appropriate upland sources may occur as part of this interim measure if survey data indicate the need for such action.

6.2.2.2 Channel Modification

Annual surveys of the navigation channel have shown that the center of the harbor entrance is deepening and may reach the authorized depth of the Federal navigation channel. This natural deepening may present an opportunity to realign the current channel and reduce the amount of maintenance dredging. A test dredge was completed in May 2007. This dredge removed a sand wave with the intent of promoting scour downstream to determine whether a channel re-

alignment was feasible. USACE monitored this site in the following years and determined that the sand wave reformed. USACE determined that a realigned channel would not naturally be maintained. USACE continues to survey the depth and study the formation of contours in this reach.

6.2.3 Navigation Improvement Project (NIP)

Section 202 of the Water Resources Development Act of 1986 authorized the Grays Harbor NIP and a channel depth of 38 feet. The NIP consisted of modifications to 23.5 miles of channel. In 1991, USACE completed the deepening of 19.7 miles of downstream channel (Bar Channel to Cow Point Reach) to a depth of -36 feet, and the widening of the Cow Point Turning Basin to 900 feet.

The Port of Grays Harbor requested USACE pursue a review of the NIP to consider deepening the downstream channel (Cow Point to South Reach) to the full authorized depth of 38 feet. USACE found deepening to the full depth of -38 feet MLLW to be economically feasible and proceeded with design and environmental compliance. The deepening to -38 feet MLLW was approved and construction funded. Construction of the deepening began October 2016. The USACE intends to maintain the entirety of the deepened channel through maintenance dredging and disposal, as discussed previously and as reflected in the deepening and subsequent maintenance dredging SEIS (USACE 2014b).

6.3 Incremental Effects of the Proposed Action

Compared with the no action alternative, direct and indirect effects on the human environment are not expected to significantly increase due to the proposed maintenance dredging; rather, the proposed action would facilitate a continuation of the current type and intensity of human use of the Westhaven Cove Small Boat Basin. Direct effects associated with the proposed action would occur only in areas previously disturbed by dredging and disposal activities. The mitigation measures implemented to ameliorate negative effects would reduce the project's contribution to the cumulative effects of all actions in Grays Harbor. The human environment is benefited by past, present, and future maintenance dredging, jetty and breakwater maintenance, and dredge material disposal to nourish beaches and protect shorelines. These actions are designed to safeguard navigation and human habitation within Grays Harbor and facilitate commercial and recreational vessel use of Westhaven Cove Small Boat Basin. In the context of past, present, and reasonably foreseeable actions, the incremental effect of the Westhaven Cove Small Boat Basin maintenance dredging program would not result in significant cumulative effects.

Though maintenance dredging does result in mortality and reduced habitat value for a variety of marine and estuarine species, the continuation of the USACE's Westhaven Cove Small Boat Basin maintenance dredging program would not result in any new impacts to ecological function given the existing degraded condition of the basin. This alternative would add to the total greenhouse gas atmospheric burden, but the quantity of emissions would be a tiny fraction of all anthropogenic sources of greenhouse gasses and does not constitute a significant contribution of greenhouse gasses.

7 ENVIRONMENTAL COMPLIANCE

USACE has analyzed the environmental effects of the alternatives and the following sections describe how the preferred alternative complies with all pertinent environmental laws and executive orders.

7.1 National Environmental Policy Act

In accordance with the National Environmental Policy Act, Federal agencies are required to disclose the potential environmental effects of their projects and to solicit public comment. The purpose of this document is to solicit public comment and fulfill the requirements under the National Environmental Policy Act, as well as to provide a basis for informed decision making. This Draft Environmental Assessment and public comment period fulfills obligations under NEPA.

7.2 Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972, as amended, prohibits the taking of marine mammals by citizens of the United States except under certain conditions (16 U.S.C. 1361). Several species of marine mammals can be found in Grays Harbor or the adjacent Pacific Ocean waters. The ones likely to occur within the immediate project vicinity are harbor seals and California sea lions. USACE has determined that the project would not be anticipated to disturb any marine mammal to the extent of causing disruption to behavioral patterns, and that it is thus not necessary to pursue an incidental harassment authorization under the MMPA. The rationale for this determination is the following:

1. Marine mammals have the ability to avoid the area while underwater and/or haul out in areas nearby that are not exposed to the elevated underwater noise from dredging.
2. The soft substrate in Westhaven Cove Small Boat Basin is expected to better absorb noise than other clamshell dredging studies.
3. The short exposure time of the bucket hitting the bottom (four to five seconds every 15 to 20 seconds), which is the only sound that may approach/exceed thresholds for harassment of pinnipeds.
4. Ambient noise levels in the Westhaven area are already higher than unconfined and undeveloped marine areas due to boat traffic, and marine mammals are likely acclimated to these disturbances.

7.3 Endangered Species Act

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, Federal projects must take into consideration impacts to federally listed threatened or endangered species. Since the maintenance dredging would affect some listed species, a Section 7 consultation is required. The USACE submitted a Combined Project Biological Assessment for maintenance dredging, of which this dredging action will be one component, to NMFS and USFWS. USFWS concurred with the determination of “may aafect, but not likely to adversely affect” bull trout and their critical habitat (Appendix F). Concurrence from NMFS on other species is pending. ESA consultation will be complete upon the finalization of this EA.

Consultation has been concluded on the placement of dredged materials placement at the multi-user aquatic disposal sites including the Point Chehalis and South Jetty sites.

7.4 Clean Water Act

The Clean Water Act requires Federal agencies to protect waters of the United States. The Act disallows the placement of dredged or fill material into waters of the U.S. unless it can be demonstrated disposal occurs in the least costly, environmentally acceptable manner, consistent with engineering requirements established for the project. Based on recent pricing of similar maintenance dredging projects of small harbors in the Northwest, Alternative 2 is expected to be less costly than Alternative 3; furthermore, the availability of mechanical dredging contractors is expected to be much more widespread and reliable than that of small hydraulic plant operators. USACE prepared a 404(b)(1) evaluation to document findings regarding this project pursuant to Section 404 of the Act, attached as Appendix C. The USACE prepared and distributed a Section 404 public notice for public comment contemporaneous with this Draft EA. No wetlands would be affected by the project. Dredged material would not be discharged onto or directly adjacent to vegetated shallows.

Water Quality Certification under Section 401 of the Act for discharges of dredged or fill material into the waters of the U.S. assures compliance with state water quality standards. The USACE is seeking a 401 Water Quality Certification from the Washington Department of Ecology and would comply with all applicable requirements and conditions associated with the discharge of dredged material into waters of the U.S. This coordination will be concluded prior to the finalization of this EA.

7.5 Coastal Zone Management Act

The Coastal Zone Management Act of 1972 as amended (16 U.S.C. §§ 1451-1465) requires Federal agencies to carry out their activities in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state Coastal Zone Management Program. The USACE has prepared a Coastal Zone Consistency Determination and has submitted it to the Washington Department of Ecology for concurrence (Appendix D). Completion of coordination with the Washington Department of Ecology is pending.

7.6 National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. §470), as amended, establishes preservation as a national policy and directs the Federal government to provide leadership in preserving, restoring, and maintaining the nation's historic and cultural environment. Section 106 of NHPA requires Federal agencies to account for the indirect, direct, and cumulative effects of their undertakings on historic properties (i.e., archaeological sites, Traditional Cultural Properties, buildings, structures, objects, districts, and landscapes listed in or eligible for listing in the National Register of Historic Places). Section 106 and its implementing regulations at 36 CFR 800 establish procedures for Federal agencies to follow in identifying historic properties and assessing and resolving effects of their undertaking on them, in consultation with State Historic Preservation Officers (SHPO), Indian tribes, Native Hawaiians,

and the Advisory Council for Historic Preservation (ACHP), as appropriate. Other parties may participate in the Section 106 consultation process, including but not limited to applicants for Federal assistance, permit and license applicants, certified local governments, and other groups or individuals with an economic, social, or cultural interest in the project. Maximum public involvement in the process is encouraged.

USACE has consulted with the Washington State Historic Preservation Office (SHPO) and the Quinault Nation, Quileute Tribe, the Hoh Indian Tribe, the Shoalwater Bay Indian Tribe and the Chehalis Indian Tribe. Letters were sent on January 29th, 2016 to the Washington SHPO detailing the project and defining the area of potential effect (APE). In a letter dated February 8, 2016 the Washington SHPO concurred with the APE. Tribal knowledge and concerns letters were sent on January 29th, 2016 to the Quinault Nation, the Hoh Indian Tribe, the Shoalwater Bay Indian Tribe and the Chehalis Indian Tribe. No response was received. On August 8, 2016, letters were sent to the Washington SHPO and aforementioned Tribes documenting the Corps determination of no historic properties affected. The Washington SHPO responded by letter dated August 16, 2016 and concurred with the determination of No Historic Properties affected. No response was received from the aforementioned Tribes.

7.7 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act requires Federal agencies to consult with NMFS regarding actions that may adversely affect Essential Fish Habitat (EFH) for groundfish, coastal pelagic species, and Pacific salmon. An EFH determination for the maintenance dredging of the Westhaven Cove Small Boat Basin was included in the Combined Project Biological Assessment submitted to NMFS. The USACE has determined that maintenance dredging may adversely affect EFH for the entire maintenance dredging program, including Westhaven Cove, because removal of dredged material would constitute a detectable effect to EFH by disturbing the substrate and associated water quality impacts. EFH coordination for disposal at the Point Chehalis and South Jetty multi-user aquatic sites was previously concluded.

7.8 Clean Air Act

Section 176 of the Clean Air Act (CAA), 42 USC 7506(c), prohibits Federal agencies from approving any action that does not conform to an approved state or Federal implementation plan. Maintenance dredging and disposal activities under this project would result in emissions that are clearly *de minimis* and would constitute maintenance dredging where no new depths are required and no new disposal sites are designated, so the project is exempt from any requirement to conform to a State Implementation Plan under 40 CFR 93.153(c)(2)(ix).

7.9 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 661 et seq.) requires that wildlife conservation receive equal consideration and be coordinated with other features of water resource development projects. A report and USFWS coordination are not required for maintenance work such as the proposed work.

7.10 Executive Order 12898, Environmental Justice

Executive Order 12898 directs every Federal agency to identify and address disproportionately high and adverse human health or environmental effects of agency programs and activities on minority and low-income populations.

The Quinault Tribe constitutes a distinct, separate community of Native Americans who rely on Treaty-reserved fish for subsistence, economic, and spiritual purposes. Dredging in the project Westhaven Cove Small Boat Basin is not expected to result in any disproportionate adverse environmental effects or impacts on the health of tribal members, or other minority/low-income populations. No interference with treaty rights is anticipated.

The project does not involve siting of a facility that would discharge pollutants or contaminants. Dredged material is thoroughly tested for a wide variety of contaminants prior to disposal to ensure that the material is suitable for unconfined, open-water disposal. Therefore, no human health effects would occur. Maintenance of the existing navigation project would not negatively affect property values in the area, or socially stigmatize local residents or businesses.

8 UNAVOIDABLE ADVERSE IMPACTS

The primary unavoidable adverse impact would be disruption of the benthic community in Westhaven Cove Small Boat Basin and the disposal sites. Invertebrate communities are likely to recover within the basin due to infrequency of dredging. Another unavoidable adverse impact would be air pollution and greenhouse gas emissions from the dredge and associated machinery. Both air pollution and greenhouse gas emissions would be small scale.

There would be some effects to water quality in the immediate vicinity of the active dredge and during dredge material disposal. Any effects to water quality would be short lived and small scale. Therefore, any effects to water quality would be insignificant. Effects to aquatic wildlife would be minimized by working during times of the year when ecologically important aquatic species (including ESA listed species) would not be in the area or in low abundance, and using a clamshell dredge, which has low entrainment. The dredge project would not negatively affect the geomorphology of Grays Harbor. Noise and light impacts would be temporarily increased by the proposed dredging operation, but to a minor degree.

Sediment re-suspension would lead to increased turbidity in the vicinity of the dredge operation and at the disposal sites. However, the DMEDP User Manual standards for sediment are designed to be protective of organisms that come into contact with sediments, and concentrations and bioavailability of contaminants in sediments suspended during dredging and disposal are below levels that may cause harm to juvenile or adult salmonids. Sediments to be removed from Westhaven Cove Small Boat Basin have been tested and approved for open water disposal under the DMMP guidelines.

9 COMPARISON OF NO-ACTION AND PREFERRED ALTERNATIVE

Some effects to the human environment would be greater under the preferred alternative than under the no action alternative. The atmospheric environment would continue to be indirectly

affected with the preferred alternative by maintaining vessel access to the Westhaven Cove Small Boat Basin thus slightly increasing air pollution into Grays Harbor. Under the no action alternative there would be no future dredging which eventually could significantly reduce vessel access to the marina resulting in localized improved air quality.

Changes to the aquatic environment would perhaps be the most dramatic under the no-action alternative. Substrate contours in the marina would be allowed to undergo natural changes and fauna associated with the substrate may progress to a natural, climax state. Overall this would be beneficial to the aquatic environment and any ESA listed species in the area.

However, the no action alternative would significantly affect the local economy of Westport, WA. Commercial fishing, recreational, and charter boats would not be able to use the marina for mooring. The result would be fewer jobs for local people. The U.S. Coast Guard station also would be unable to use the marina and would have to find another location in the area.

The no action alternative was rejected because it does not meet the purpose and need for the project. The hydraulic dredge alternative was not recommended due to logistical constraints of loading hydraulically pumped material on a barge, and the higher entrainment rate of aquatic organisms associated with hydraulic dredging. The preferred alternative (clamshell dredging) is recommended because it would fully achieve the project purpose, and has a low entrainment rate. The preferred alternative would have greater effect on the environment than the no action alternative, but the proposed dredge project would be cost effective relative to meeting the purpose and need of the proposed project, and would provide the greatest safety for vessels using Westhaven Cove Small Boat Basin. Although the preferred alternative would have a greater effect on the aquatic environment, work window restrictions and other mitigation measures would minimize effects to the aquatic environment. The hydraulic dredging alternative would have similar temporary effects to the aquatic environment as the clamshell dredging, with slightly higher entrainment rates and slightly lower impacts to turbidity. It would adhere to the same in-water work window and the disposal methods would be the same.

10 PUBLIC INTEREST EVALUATION FACTORS FOR MAINTENANCE DREDGING ACTIVITIES

An evaluation of the dredging and disposal activity was conducted in light of the public interest factors prescribed in 33 CFR 336.1(c). These factors include: navigation and the Federal standard for dredged material disposal; water quality; coastal zone consistency; wetlands; endangered species; historic resources; scenic and recreation values; fish and wildlife; marine sanctuaries; and applicable state/regional/local land use classifications, determinations, and/or policies. Of these, navigation and the Federal standard, water quality, coastal zone consistency, wetlands, endangered species, historic resources, scenic values, recreational values, and fish and wildlife have been evaluated in this Draft EA. The factor of marine sanctuaries established under the Ocean Dumping Act is not applicable, as there are no sanctuary effects of dredging or disposal. The factor of application of non-Federal land use policies was considered in connection with the coastal zone consistency evaluation and in section 3.10; no additional impacts to state/regional/local land use classifications, determinations, and/or policies are anticipated as the project would maintain a federally authorized boat basin that is already used for vessel moorage.

In accordance with 33 CFR 337.1(a)(14) and 325.3(c)(1), the following additional relevant factors were also considered:

- Conservation: This action would entail maintenance dredging, and no new channel construction or channel depths would be constructed. The effects on fish and wildlife, including marine mammals and listed species, have been fully evaluated. Dredged material as a resource would be conserved through placement in dispersive sites, the locations of which have been selected to return the sediments to the littoral system and to help provide stabilization to Grays Harbor's natural and anthropogenic structural elements.
- Economics: As reflected in this Draft EA, the local community relies on the availability and full utility of the boat basin, the use of which this action would perpetuate. The preferred alternative is the least costly alternative that would meet the project's purpose and need. Based on recent pricing of similar maintenance dredging projects of small harbors in the Northwest, Alternative 2 is expected to be less costly than Alternative 3; furthermore, the availability of mechanical dredging contractors is expected to be much more widespread and reliable than that of small hydraulic plant operators. The economic benefits afforded through constructing and thereafter maintaining the dredged channel to the authorized depths were determined at the time of initial authorization to substantially outweigh the Federal costs of the action, including the necessary subsequent maintenance dredging.
- Shoreline erosion and accretion: The effects on shoreline erosion and accretion have been addressed in the geomorphology section of this Draft EA.
- Safety: Interests of safety would be served by accomplishing the maintenance dredging to the authorized depths under the preferred alternative, and providing a navigable waterway for the safe and efficient transit of USCG, commercial, tribal, and recreational vessels.
- Property ownership: Full utilization of the private vessel ownership interests by tenants of and visitors to the Westhaven Cove Small Boat Basin would be fostered by the maintenance dredging, as well as the real property ownership interests of the Port of Grays Harbor.

As provided in 33 CFR sections 335.4, 336.1(c)(1) and 337.6, the Corps has fully considered, on an equal basis, all alternatives that are both reasonable and practicable, i.e., available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. The necessary budget resources, including required items of local responsibility assigned to the Port of Grays Harbor as non-Federal sponsor, are available and adequate to fully support the action. The preferred alternative represents the least costly alternative, constituting the discharge of dredged or fill material into waters of the United States in the least costly manner and at the least costly and most practicable location, is consistent with sound engineering practices, and meets the environmental standards established by the Clean Water Act Section 404(b)(1) evaluation process. Execution of the preferred alternative, following consideration of all applicable evaluation factors, would be in the public interest.

11 SUMMARY

Overall there would be general non-significant effects to the environment of Westhaven Cove Small Boat Basin and the disposal sites because of the timing of the work windows, the small scale of the operation relative to the size of Grays Harbor, the mitigation measures, and the dredging methods that would be employed. The Preferred Alternative would not generate significant impacts on the quality of the human environment, and the preparation of an Environmental Impact Statement is thus not required. The USACE would conduct sampling and analysis of the sediments to be dredged to assure continued suitability for unrestricted aquatic disposal for dredge events that occur beyond the current suitability determination's expiration date in 2019. In light of a long-standing record of determinations that material to be dredged from the authorized navigation channel was suitable, reached in 1998 and again in 2014, it is expected that subsequent testing after 2019 will again result in a determination of suitability for unconfined aquatic discharge. If negative test results are obtained in future sediment testing USACE would revisit this EA and its conclusion and reevaluate the finding of no significant impact (FONSI). The USACE is pursuing compliance with all environmental laws including ESA, CWA, and CZMA, and expecting completion prior to the finalization of the EA and FONSI.

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APPENDIX A: REPRESENTATIVE CHANNEL CROSS-SECTIONS

Figure A1. Locations of Four Representative Cross Sections in Westhaven Cove Small Boat Basin

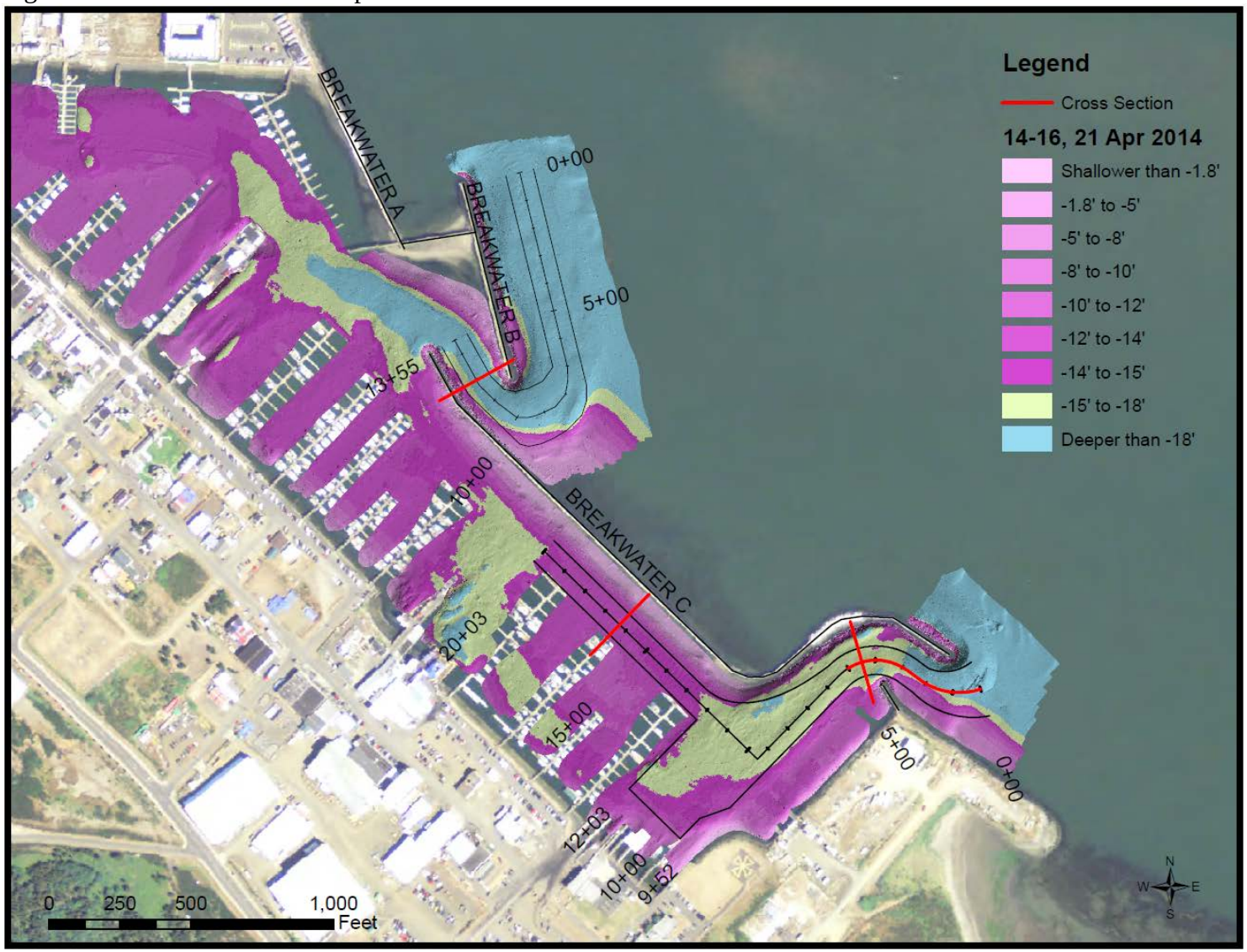
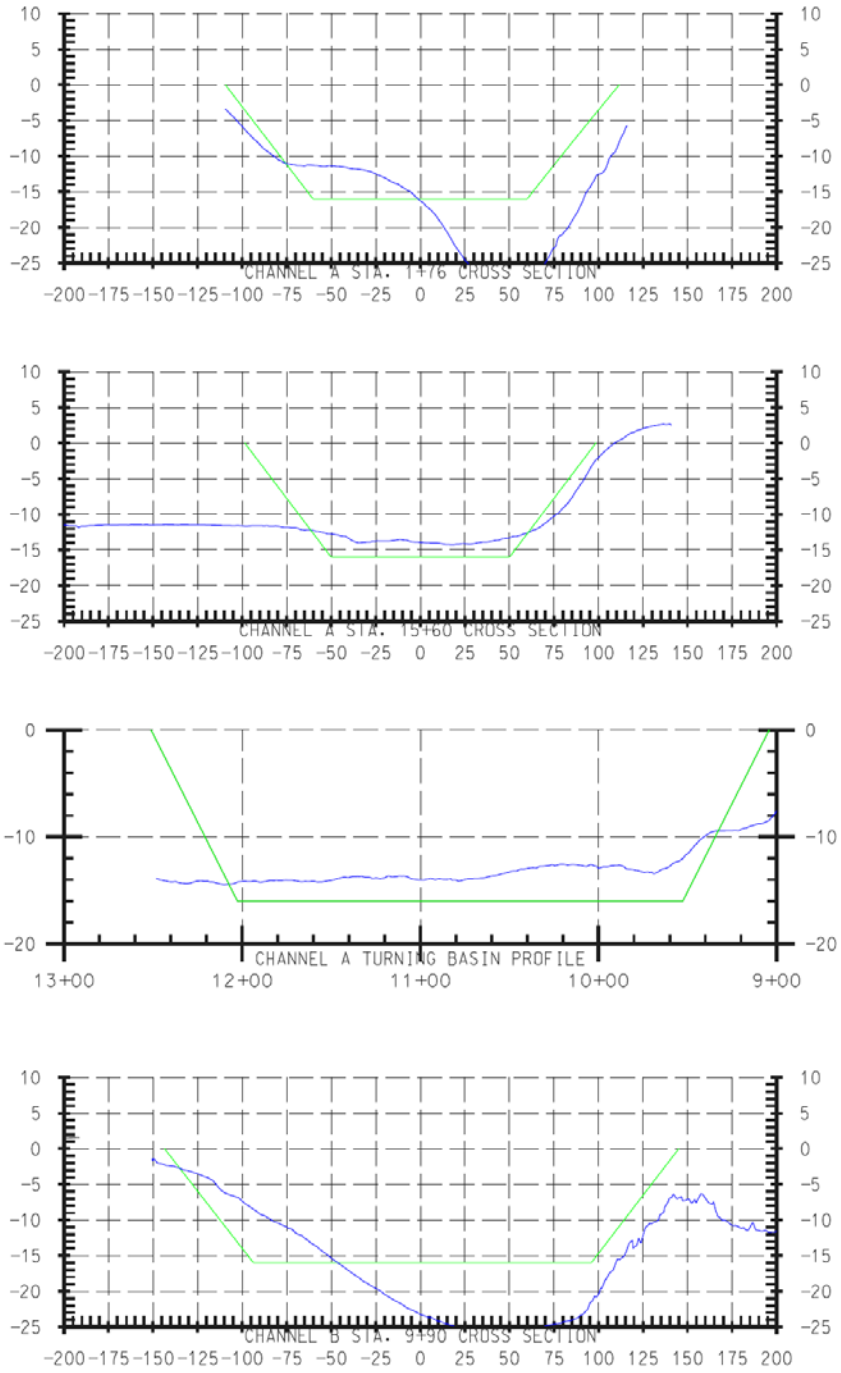


Figure A2. Four Representative Channel Cross Section in Westhaven Cove Small Boat Basin



APPENDIX B: SEDIMENT SUITABILITY DETERMINATION

CENWS-OD-TS-NR-DMMO

MEMORANDUM FOR: RECORD December 4, 2014

SUBJECT: DETERMINATION REGARDING THE SUITABILITY OF DREDGED MATERIAL FROM THE WESTHAVEN COVE FEDERAL NAVIGATION PROJECT, EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT, FOR OPEN-WATER DISPOSAL AT THE SOUTH JETTY OR POINT CHEHALIS DISPERSIVE SITES, OR FOR BENEFICIAL USE.

1. Introduction. This memorandum reflects the consensus determination of the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Washington Departments of Ecology and Natural Resources, and the Environmental Protection Agency) regarding the suitability of material from the Westhaven Cove Federal Navigation Project for unconfined open-water disposal at the South Jetty or Point Chehalis estuarine sites, or for beneficial use. The requirements for determining the suitability of this material are documented in the "*Dredged Material Evaluation and Disposal Procedures – User Manual*" (DMMP, 2013), as amended by updates subsequently made through the Sediment Management Annual Review process.

2. Project Background. As authorized by Congress, the Seattle District, U.S. Army Corps of Engineers (USACE) is responsible for maintenance dredging of the navigation channel at Westhaven Cove in Westport, Washington (Figure 1). The authorized depth of the channel is minus 16-feet Mean Lower Low Water (MLLW), with an allowance for one foot of advanced maintenance and one foot of overdepth dredging. Thus, the total characterization depth for this project is -18 ft MLLW.

   Westhaven Cove includes the Northwest Entrance Channel, Southeast Entrance Channel, Access Channel and Turning Basin. A bathymetric survey of the project was conducted by the Corps of Engineers in September 2013. This survey indicated that maintenance dredging was needed. Based on a second survey in April 2014, the dredging volume to -18 ft MLLW, including side slopes and a 15% contingency factor, was estimated to be 47,120 cubic yards (cy).

   The most recent suitability determination for Westhaven Cove is dated July 8, 1998 (DMMP, 1998). The Corps proposed dredging 23,000 cy of material from the Southeast entrance and disposing of the material at the Point Chehalis open-water disposal site. The project was ranked moderate for characterization. Sediments collected from the entrance were principally silty sands. There were no detected or non-detected exceedances of the screening levels (SLs) for the DMMP chemicals of concern (COC) in effect at that time. Dioxin concentrations were below 5 ng/kg for 2,3,7,8-TCDD and 15 ng/kg toxicity equivalents (TEQ), which are the bioaccumulation triggers (BTs) for dredging projects in Grays Harbor. Bioassays were run concurrently with the chemical analyses; the sediments passed the DMMP evaluation guidelines and the dredged material was found suitable for open-water disposal.

3. Project Summary. Table 1 includes project summary and tracking information.

Table 1. Project Summary

Project ranking	Moderate
Proposed dredging volume	47,120 cy
Proposed dredging depth	-18 feet MLLW (including 1 foot of advanced maintenance and 1 foot of overdepth)
Draft SAP received	July 18, 2014
Draft SAP returned for revisions	July 28, 2014
Revised SAP received	July 31, 2014
Revised SAP approved	August 1, 2014
Sampling dates	August 4-7, 2014
Draft data report received	November 10, 2014
Comments provided on draft report	November 17, 2014
Final data report received	November 30, 2014
DMMP tracking number	WESTH-1-A-F-360
Recency expiration date (moderate rank = 5 years)	August 2019

4. Project Ranking and Sampling Requirements. The Westhaven Cove federal navigation project is associated with Westport Marina. The DMMP ranking for marinas in Grays Harbor is "moderate" (DMMP, 2013). Therefore, the DMMP agencies assigned a moderate rank to the federal project. Maintenance dredging at Westhaven Cove has not occurred for more than ten years. Because sediment has accumulated over the course of many years, it is considered heterogeneous in nature.

   In the Dredged Material Management Program, "surface" material (i.e. the top 4 feet) is treated differently from "subsurface" material (deeper than 4 feet) for the purpose of calculating the number of dredged material management units (DMMUs) and samples needed. However, for this project there was relatively little material deeper than 4 feet and the material that was deeper than 4 feet could not be dredged separately. Therefore, all sediment was considered to be surface sediment.

   The number of samples and DMMUs were calculated using the following guidelines:
   - Maximum volume of sediment represented by each field sample = 4,000 cubic yards
   - Maximum volume of sediment represented by each DMMU = 16,000 cubic yards

   The project was divided into a total of four DMMUs, each represented by a composite of sediment samples from two to four locations. See Figure 2 for the DMMU boundaries and the dredged material volume represented by each DMMU.

5. Sampling. Sampling took place August 4-7, 2014 using a vibracore sampler (DOF/SEE, 2014b). Figure 2 shows both target and actual sampling locations. Tables 2 and 3 include information for the samples collected and the compositing scheme.

   Only minor difficulties were encountered during sampling. The sampling and analysis plan (DOF/SEE, 2014a) included a target recovery rate of 75%. On the first day of sampling, two cores that did not meet the target rate (cores 11 and 14, with recovery rates of 71.4% and 69.1% respectively) were not rejected by the contractor, but instead were used in the composite sample representing DMMU 4. The recovery rates for the other two cores from DMMU 4 (cores 12 and 13) were 85.7% and 84.3% respectively, resulting in an average of 77.6% for the four cores from DMMU 4. The DMMP agencies decided that, overall, the samples collected from DMMU 4 adequately represented the dredged material in that DMMU. Therefore, the contractor was not required to resample DMMU 4. All other cores met the 75% recovery target, with an average recovery rate of 78.7% for all cores collected.

   A second issue concerned the volume of sediment needed from each DMMU for testing and archiving. DMMUs 2, 3 and 4 were each represented by a composite of sediment from four sampling stations, which together provided the necessary volume. In contrast, the sampling and analysis plan only included two sampling stations for DMMU 1, due to the smaller dredged material volume being represented by that DMMU. Based on experience from the first day of sampling, the contractor notified DMMO that two sampling stations would not provide adequate volume. DMMO instructed the contractor to collect an additional core from the target locations for cores 1 and 2. These additional cores were numbered 15 and 16. Hence, DMMU 1 was represented by a composite of core samples from cores 1, 2, 15 and 16.

6. Chemical and Sediment Conventional Analysis. The dredged material analysis included sediment conventionals, the full suite of standard DMMP chemicals of concern, dioxins/furans and tributyltin (TBT). Table 4 includes the results for all analyses but dioxins/furans, the results for which are provided in Table 5.

   The grain-size data show that the proposed dredged material is predominantly a mixture of silt and sand, with minor fractions of gravel and clay. The total organic carbon concentration ranged widely, from 0.8 in the northwest entrance channel (DMMU 1) to 3.3 percent in the turning basin (DMMU 3). The sulfides concentrations were moderately high, ranging from 437 to 1,570 mg/kg for the composites. Ammonia concentrations were relatively low, ranging from 13 to 96 mg/kg.

   None of the DMMUs had any detected exceedances of the DMMP screening levels (SLs). For the non-detects, all reporting limits were below SL as well. Based on the absence of SL exceedances, bioassay testing was not required for this project.

   TBT was undetected in porewater extracts from all DMMUs, with a reporting limit well below the bioaccumulation trigger (BT) of 0.15 ug/l. The dioxin/furan concentrations ranged from 1.5 to 6.4 ng/kg toxicity equivalents (TEQ, with U = ½ estimated detection limit), which were also well below the BT of 15 ng/kg for projects in Grays Harbor. Concentrations of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) ranged from 0.3 to 1.2 ng/kg, below the BT of 5 ng/kg for TCDD. Based on the absence of BT exceedances, bioaccumulation testing was not required for this project.

Stage-4 data validation (EPA, 2009) was conducted for dioxins/furans, TBT, semivolatiles, PCBs and pesticides. Stage-3a data validation was conducted for sediment conventional and metals analyses. Data qualifiers assigned during validation have been incorporated into Tables 4 and 5.

7. Biological Testing. No bioassays or bioaccumulation testing were required for this project.

8. Sediment Exposed by Dredging. The sediment to be exposed by dredging must either meet the State of Washington Sediment Quality Standards (SQS) or the State's antidegradation standard (Ecology, 2013) as described in DMMP guidance (DMMP, 2008). Comparison of the proposed dredged material to SQS serves as a first-tier indicator for this purpose. Table 6 provides this comparison and shows that there were no detected or undetected exceedances of SQS for any chemical.

   There is no reason to believe that the chemical quality of the sediment to be exposed by dredging differs in any way from the proposed dredged material. Therefore, the agencies determined that there was no need for the analysis of Z-samples for this project. Based on the results for the dredged material, the sediment that will be exposed by dredging is not anticipated to have any exceedances of SQS. Therefore, this project is in compliance with the State of Washington anti-degradation standard.

9. Beneficial-Use Analysis. As indicated in the previous section, the proposed dredged material had no detected or nondetected exceedances of SQS. Therefore, with respect to chemical quality, the dredged material is suitable for in-water beneficial use.

10. Suitability Determination. This memorandum documents the evaluation of the suitability of sediment proposed for the dredging from the Westhaven Cove federal navigation project for open-water disposal. The approved sampling and analysis plan was followed and the data gathered were deemed sufficient and acceptable for regulatory decision-making under the DMMP.

    Based on the results of the previously described testing, the DMMP agencies concluded that all 47,120 cubic yards of dredged material are suitable for placement at the South Jetty and Point Chehalis dispersive sites. The dredged material is also suitable, with regard to chemical quality, for in-water beneficial use.

    This suitability determination does ***not*** constitute final agency approval of the project. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under section 404(b)(1) of the Clean Water Act.

11. References.

DMMP, 1998. *Determination on the Suitability of Maintenance Material Dredged from the East Entrance to Westhaven Cove Marina in Grays Harbor, Washington, Evaluated under Section 404 of the Clean Water Act for Open-Water Disposal at the Point Chehalis Disposal Site.* Prepared by the Seattle District Dredged Material Management Office for the Dredged Material Management Program. July 8, 1998.

DMMP, 2008. *Quality of Post-Dredge Sediment Surfaces (Updated).* A Clarification Paper Prepared by David Fox (USACE), Erika Hoffman (EPA) and Tom Gries (Ecology) for the Dredged Material Management Program. June 2008.

DMMP, 2013. *Dredged Material Evaluation and Disposal Procedures (User Manual).* Prepared by the Seattle District Dredged Material Management Office for the Dredged Material Management Program. July 2013.

Ecology, 2013. *Sediment Management Standards – Chapter 173-204 WAC*. Washington State Department of Ecology. February 2013.

EPA, 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. U.S. Environmental Protections Agency. January 2009.

DOF/SEE, 2014a. *Sampling and Analysis Plan, Westhaven Cove Federal Navigation Improvement Project – Dredged Material Characterization, Westport, Washington.* Prepared for the US Army Corps of Engineers by Dalton, Olmsted and Fuglevand, Inc. and Science and Engineering for the Environment, LLC. July 31, 2014.

DOF/SEE, 2014b. *Data Report; Westhaven Cove Federal Navigation Project, Dredged Material Characterization, Westport, Washington.* Prepared for the US Army Corps of Engineers by Dalton, Olmsted and Fuglevand, Inc. and Science and Engineering for the Environment, LLC. November 30, 2014.

12. Agency Signatures.

The signed document is on file in the Dredged Material Management Office.

Concur:

_____ _____
Date David Fox, P.E. - Seattle District Corps of Engineers

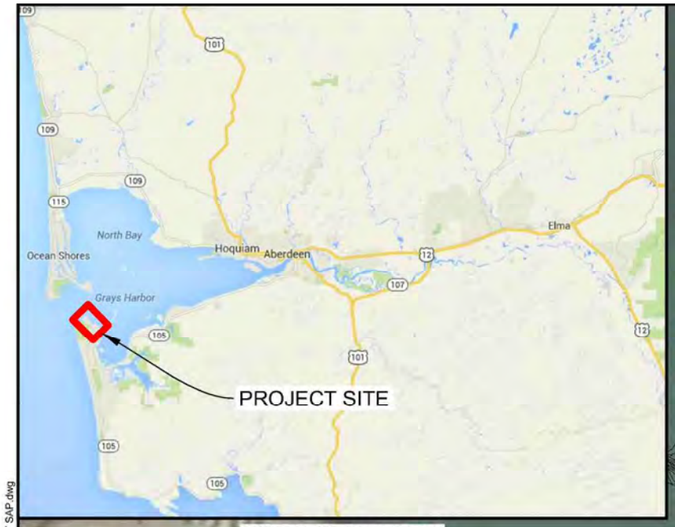
_____ _____
Date Justine Barton - Environmental Protection Agency

_____ _____
Date Laura Inouye, Ph.D. - Washington Department of Ecology

_____ _____
Date Celia Barton - Washington Department of Natural Resources

Copies furnished:

DMMP signatories
Elizabeth Chien, CENWS-OD-TS-NS
Marc Horton, Port of Grays Harbor
Tim Thompson, SEE
Nancy O'Bourke, DOF



VICINITY MAP

GRAYS HARBOR

PROJECT SITE

0+00

NW ENTRANCE CHANNEL

5+00

13+55

10+00

WESTHAVEN COVE

PROJECT SITE

0+00

SE ENTRANCE CHANNEL

5+00

ACCESS CHANNEL

20+00

15+00

10+00

TURNING BASIN

ESTIMATED EXCAVATION QUANTITIES	
SURFACE MATERIAL	47,120 YD3

*QUANTITIES INCLUDE 2' OF OVER DREDGE WITH 15% ADDED. QUANTITIES ARE ROUNDED TO THE NEAREST 10 YD3.

0 250
Scale in Feet

NOTES:

1. BATHYMETRIC CONTOURS GENERATED FROM HYDRO SURVEY DATA COLLECTED APRIL 14, 15, 16, AND 21, 2014 BY USACE.
2. HORIZONTAL COORDINATE SYSTEM WASHINGTON STATE PLANE SOUTH, VERTICAL TIDAL DATUM NOS MLLW EPOCH 1960-1978, US FOOT.
3. BASE MAP DRAWING INFORMATION PROVIDED BY USACE.
4. BACKGROUND IMAGE SOURCE: GOOGLE EARTH 9/3/2011

LEGEND

- PROJECT BOUNDARY
- NAVIGATION CHANNEL
- NAVIGATION CHANNEL CENTERLINE
- EXISTING CONTOURS

U.S. ARMY CORPS OF ENGINEERS

SEATTLE DISTRICT MATOC
SEATTLE, WASHINGTON

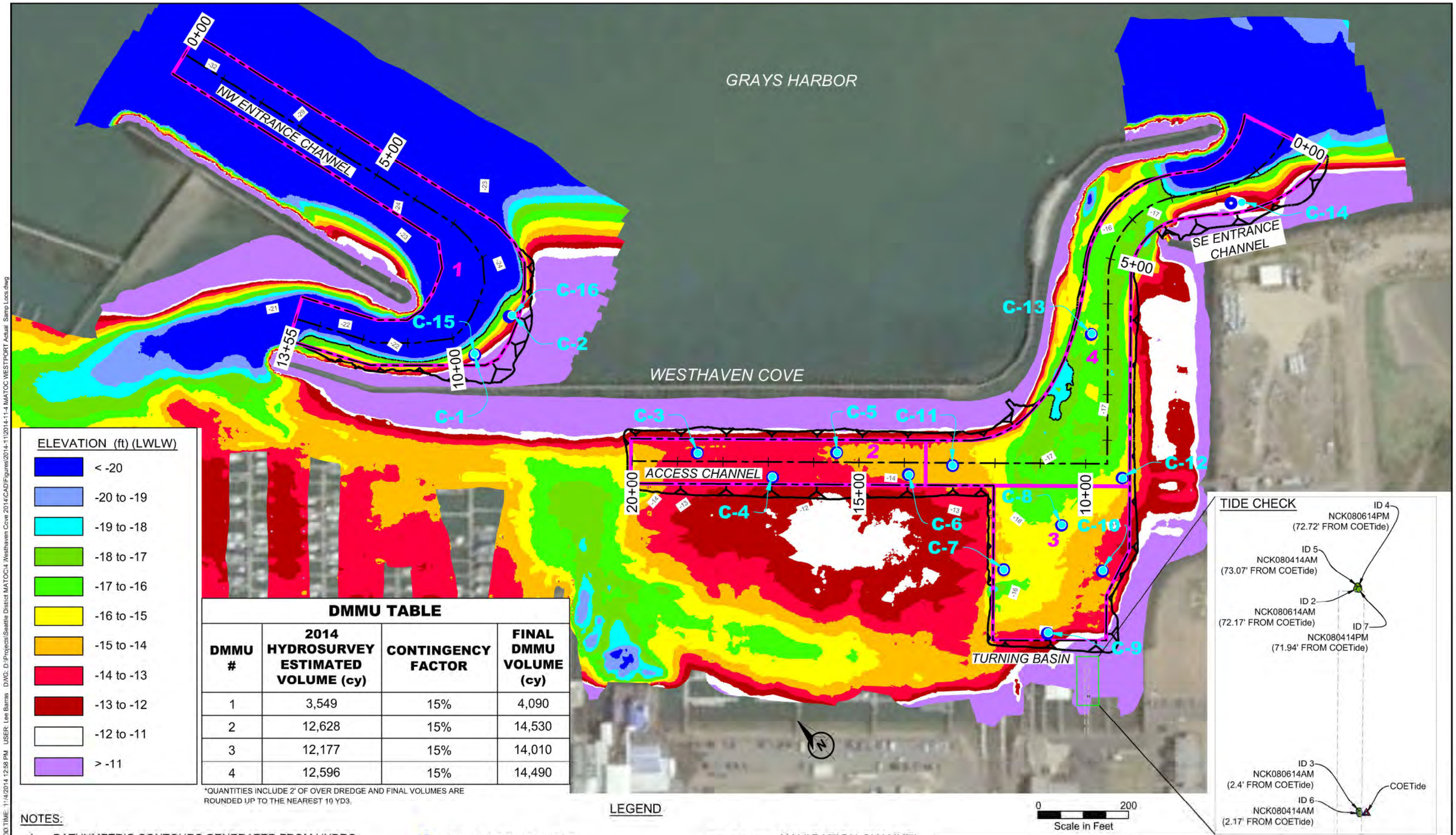
VICINITY MAP FOR THE WESTHAVEN COVE FEDERAL NAVIGATION CHANNEL

DALTON OLMSTED FUGLEVAND

FIGURE
1

JULY 28, 2014

PLOT TIME: 7/28/2014 10:40 AM MOD TIME: 7/28/2014 10:38 AM USER: Steven Rasmussen DWG: D:\Projects\Seattle District MATOC\4 Westhaven Cove 2014\CAD\Figures\2014-07\2014-07-28 MATOC WESTPORT SAP.dwg



ELEVATION (ft) (LWLW)

- < -20
- -20 to -19
- -19 to -18
- -18 to -17
- -17 to -16
- -16 to -15
- -15 to -14
- -14 to -13
- -13 to -12
- -12 to -11
- > -11

DMMU TABLE

DMMU #	2014 HYDROSURVEY ESTIMATED VOLUME (cy)	CONTINGENCY FACTOR	FINAL DMMU VOLUME (cy)
1	3,549	15%	4,090
2	12,628	15%	14,530
3	12,177	15%	14,010
4	12,596	15%	14,490

*QUANTITIES INCLUDE 2' OF OVER DREDGE AND FINAL VOLUMES ARE ROUNDED UP TO THE NEAREST 10 YD3.

TIDE CHECK

- ID 4 NCK080614PM (72.72' FROM COETide)
- ID 5 NCK080414AM (73.07' FROM COETide)
- ID 2 NCK080614AM (72.17' FROM COETide)
- ID 7 NCK080414PM (71.94' FROM COETide)
- ID 3 NCK080614AM (2.4' FROM COETide)
- ID 6 NCK080414AM (2.17' FROM COETide)
- COETide

0 200
Scale in Feet

NOTES:

1. BATHYMETRIC CONTOURS GENERATED FROM HYDRO SURVEY DATA COLLECTED APRIL 14, 15, 16, AND 21, 2014 BY USACE.
2. HORIZONTAL COORDINATE SYSTEM WASHINGTON STATE PLANE SOUTH, VERTICAL TIDAL DATUM NOS MLLW EPOCH 1960-1978, US FOOT.
3. BASE MAP DRAWING INFORMATION PROVIDED BY USACE.

LEGEND

- PROPOSED SAMPLE LOCATION
- C-x ACTUAL SAMPLE LOCATION (8/4-6/2014)
- X DMMU
- NAVIGATION CHANNEL
- -15 CONTOUR MAJOR (5')
- -14 CONTOUR MINOR (1')
- SLOPE
- EXISTING SHORELINE

U.S. ARMY CORPS OF ENGINEERS

SEATTLE DISTRICT MATOC
SEATTLE, WASHINGTON

WESTHAVEN COVE FEDERAL NAVIGATION CHANNEL DMMUs AND ACTUAL SEDIMENT SAMPLING LOCATIONS

DALTON OLMSTED FUGLEVAND

FIGURE 2

OCTOBER 13, 2014

PLOT TIME: 11/4/2014 12:58 PM MOD TIME: 11/4/2014 12:58 PM USER: Lee Barras DWG: D:\Projects\Seattle District MATOC\4 Westhaven Cove 2014\CAD\Figures\2014-11\2014-11-4 MATOC WESTPORT Actual Samp Locs.dwg

Table 2 - Westhaven Cove Sampling Data (from DOF/SEE, 2014b)

DMMU	Core	Attempt	Date	Time	Latitude	Longitude	Mudline Elevation [1]	Penetration (ft)	Acquisition (ft)	% Recovery	Acquired Elevation
					NAD 1983		(MLLW)				(MLLW) [2]
DMMU 1	1	1	8/6/2014	9:05:07	46 54.49319 N	124 06.41346 W	-14.0	9.0	7.3	81.1%	-21.3
	2	1	8/6/2014	10:35:34	46 54.49559 N	124 06.38556 W	-14.6	7.0	5.6	80.0%	-20.2
	15 [3]	1	8/6/2014	9:59:33	46 54.49348 N	124 06.41343 W	-13.5	9.0	6.9	76.7%	-20.4
	16 [3]	1	8/6/2014	11:26:43	46 54.49520 N	124 06.38480 W	---	Rejected; insufficient recovery			
	16 [3]	2	8/6/2014	11:49:03	46 54.49504 N	124 06.38502 W	-15.2	7.0	5.6	80.0%	-20.8
DMMU 2	3	1	8/4/2014	8:01:39	46 54.41293 N	124 06.35947 W	-14.1	7	5.9	84.5%	-20.0
	4	1	8/4/2014	10:25:33	46 54.38871 N	124 06.33817 W	-13.8	9	6.3	70.0%	-20.1
	5	1	8/4/2014	9:05:38	46 54.37966 N	124 06.30401 W	-14.4	7	5.5	78.6%	-19.9
	6	1	8/4/2014	9:44:30	46 54.35648 N	124 06.28325 W	-14.7	7	5.6	79.8%	-20.3
DMMU 3	7	1	8/6/2014	12:57:39	46 54.30780 N	124 06.27878 W	-15.1	7.0	6.6	94.3%	-21.7
	8	1	8/6/2014	13:31:29	46 54.30618 N	124 06.23994 W	-15.8	7.0	5.8	82.9%	-21.6
	9	1	8/6/2014	14:55:20	46 54.28012 N	124 06.28307 W	-14.0	9.0	6.8	75.6%	-20.8
	10	1	8/6/2014	14:06:35	46 54.28387 N	124 06.23969 W	-15.2	7.0	5.3	75.7%	-20.5
DMMU 4	11	1	8/4/2014	11:10:25	46 54.34854 N	124 06.26259 W	-14.8	7	5.0	71.4%	-19.8
	12	1	8/4/2014	11:43:38	46 54.30420 N	124 06.19953 W	-15.5	7	6.0	85.7%	-21.5
	13	1	8/4/2014	13:43:06	46 54.35103 N	124 06.16109 W	-15.1	7	5.9	84.3%	-21.0
	14	1	8/4/2014	15:18:15	46 54.35078 N	124 06.05565 W	-12.4	11	7.6	69.1%	-20.0
									Average	78.7%	

Notes:

1. Tide-corrected
2. Acquired elevation = mudline elevation – length of acquired core; the target acquisition elevation was -20 ft MLLW; sediment collected deeper than this elevation was discarded during processing.
3. Two additional cores were collected at DMMU WSTH 01 in order to provide sufficient volume for analytical and biological testing. These cores were numbered 15 and 16.

Station Coordinates in NAD 1983

ft - feet

MLLW - mean lower low water

Table 3 - Westhaven Cove Compositing Data (from DOF/SEE, 2014b)

DMMU	Core	Attempt	Dredged Material Sampling			Z-layer Sampling			Dredged Material Samples			Z-layer Samples	
			Mudline Elevation [1] (ft MLLW)	Design Elevation [2] (ft MLLW)	Sampling Interval (ft)	Design Elevation [2] (ft MLLW)	Bottom Z-layer (ft MLLW)	Sampling Interval (ft)	Composite	Individual Archive	Sulfide	Composite	Individual Archive
DMMU 1	1	1	-14.0	-18.0	4.0	-18.0	-20.0	2.0	✓	✓	✓	✓	✓
	2	1	-14.6	-18.0	3.4	-18.0	-20.0	2.0	✓	✓		✓	✓
	15 [3]	1	-13.5	-18.0	4.5	-18.0	-20.0	2.0	✓	✓		✓	✓
	16 [3]	2	-15.2	-18.0	2.8	-18.0	-20.0	2.0	✓	✓		✓	✓
DMMU 2	3	1	-14.1	-18.0	3.9	-18.0	-20.0	2.0	✓	✓	✓	✓	✓
	4	1	-13.8	-18.0	4.2	-18.0	-20.0	2.0	✓	✓		✓	✓
	5	1	-14.4	-18.0	3.6	-18.0	-20.0	2.0	✓	✓		✓	✓
	6	1	-14.7	-18.0	3.3	-18.0	-20.0	2.0	✓	✓		✓	✓
DMMU 3	7	1	-15.1	-18.0	2.9	-18.0	-20.0	2.0	✓	✓	✓	✓	✓
	8	1	-15.8	-18.0	2.2	-18.0	-20.0	2.0	✓	✓		✓	✓
	9	1	-14.0	-18.0	4.0	-18.0	-20.0	2.0	✓	✓		✓	✓
	10	1	-15.2	-18.0	2.8	-18.0	-20.0	2.0	✓	✓		✓	✓
DMMU 4	11	1	-14.8	-18.0	3.2	-18.0	-20.0	2.0	✓	✓	✓	✓	✓
	12	1	-15.5	-18.0	2.5	-18.0	-20.0	2.0	✓	✓		✓	✓
	13	1	-15.1	-18.0	2.9	-18.0	-20.0	2.0	✓	✓		✓	✓
	14	1	-12.4	-18.0	5.6	-18.0	-20.0	2.0	✓	✓		✓	✓

Notes:

1. Tide-corrected
2. Design elevation = authorized federal navigation depth (-16 ft) + over-dredge (1 ft) + advanced maintenance (1 ft)
3. Two additional cores were collected at DMMU WSTH 01 in order to provide sufficient volume for analytical and biological testing. These cores were numbered 15 and 16.

ft - feet

MLLW - mean lower low water

Table 4 - Analytical Results Compared to the DMMP Guidelines (from DOF/SEE, 2014b)

Chemical	CAS[1] Number	DMMP Marine Guidelines			Dredged Material Management Unit							
					DMMU 1		DMMU 2		DMMU 3		DMMU 4	
		SL	BT	ML	Value	VQ	Value	VQ	Value	VQ	Value	VQ
Conventionals												
Gravel (%)					0.1		1.6		0.1		3.7	
Sand (%)					64.3		26.5		32.6		43.1	
Silt (%)					31.3		56.2		53.7		42.2	
Clay (%)					4.5		15.7		13.5		11	
Total Solids (%)					69.0		52.8		51.8		60.1	
Total Volatile Solids (%)					2.9		6.5		6.8		5.0	
Total Organic Carbon (%)					0.8		1.91		3.32		2.03	
Metals (mg/kg)												
Antimony	7440-36-0	150	---	200	6	UJ	9	UJ	9	UJ	8	UJ
Arsenic	7440-38-2	57	507.1	700	6	U	9	U	9	U	8	U
Cadmium	7440-43-9	5.1	11.3	14	0.5		0.9		0.7		0.7	
Chromium	7440-47-3	260	260	---	22.1		37.1		33.3		29.1	
Copper	7440-50-8	390	1027	1300	16.8		47.6		37.7		29.8	
Lead	7439-92-1	450	975	1200	4		7		7		6	
Mercury	7439-97-6	0.41	1.5	2.3	0.03		0.08		0.06		0.05	
Nickel	7440-02-0	---	---	---	17		26		24		21	
Selenium [2]	7782-49-2	---	3	---	0.7	U	0.9	U	0.9	U	0.8	U
Silver	7440-22-4	6.1	6.1	8.4	0.4	U	0.5	U	0.5	U	0.5	U
Zinc	7440-66-6	410	2783	3800	51		94		82		69	
Organotin Compounds (µg/L)												
Tributyltin (interstitial water)	56573-85-4	---	0.15	---	0.005	U	0.005	U	0.005	U	0.005	U
Polycyclic Aromatic Hydrocarbons (µg/kg)	130498-29-2	---	---	---								
Total LPAH	---	5200	---	29000	*48*		*154*		*77*		*95*	
Naphthalene	91-20-3	2100	---	2400	48	U	26	J	32	J	32	J
2-Methylnaphthalene [3]	91-57-6	670	---	1900	48	U	48	U	47	U	46	U
Acenaphthylene	208-96-8	560	---	1300	48	U	48	U	47	U	46	U
Acenaphthene	83-32-9	500	---	2000	48	U	48	U	47	U	46	U
Fluorene	86-73-7	540	---	3600	48	UJ	48	UJ	47	UJ	46	UJ
Phenanthrene	85-01-8	1500	---	21000	48	UJ	97	J	45	J	63	J
Anthracene	120-12-7	960	---	13000	48	UJ	31	J	47.0	UJ	46	UJ
Total HPAH	---	12000	---	69000	*57*		*652*		*335*		*281*	
Fluoranthene	206-44-0	1700	4600	30000	26	J	190		87		110	
Pyrene	129-00-0	2600	11980	16000	31	J	220	J	130	J	100	J
Benz(a)anthracene	56-55-3	1300	---	5100	48	UJ	43	J	29	J	46	UJ
Chrysene	218-01-9	1400	---	21000	48	U	61		32	J	34	J

Table 4 - Analytical Results Compared to the DMMP Guidelines (from DOF/SEE, 2014b)

Chemical	CAS[(1)] Number	DMMP Marine Guidelines			Dredged Material Management Unit							
					DMMU 1		DMMU 2		DMMU 3		DMMU 4	
		SL	BT	ML	Value	VQ	Value	VQ	Value	VQ	Value	VQ
Benzo(b)fluoranthene	205-99-2	---	---	---	48	U	45	J	29	J	23	J
Benzo(k)fluoranthene	205-82-3	---	---	---	48	U	48	U	47	U	46	U
Benzo(j)fluoranthene	207-08-9	---	---	---	48	U	20	J	47	U	46	U
Benzofluoranthenes (b, j ,k)		3200	---	9900	*48*	*U*	*84*		*57*		*37*	*J*
Benzo(a)pyrene	50-32-8	1600	---	3600	48	U	27	J	47	U	46	U
Indeno(1,2,3-c,d)pyrene	193-39-5	600	---	4400	48	U	48	U	47	U	46	U
Dibenz(a,h)anthracene	53-70-3	230	---	1900	48	UJ	48	UJ	47	UJ	46	UJ
Benzo(g,h,i)perylene	191-24-2	670	---	3200	48	U	27	J	47	U	46	U
Chlorinated Hydrocarbons (µg/kg)												
1,4-Dichlorobenzene	106-46-7	110	---	120	19	U	19	U	19	U	20	U
1,2-Dichlorobenzene	95-50-1	35	---	110	19	U	19	U	19	U	20	U
1,2,4-Trichlorobenzene	120-82-1	31	---	64	19	U	19	U	19	U	20	U
Hexachlorobenzene (HCB)	118-74-1	22	168	230	0.96	U	4.1	U	5.3	U	0.99	U
Phthalate Esters (µg/kg)												
Dimethyl phthalate	131-11-3	71	---	1400	19	U	19	U	19	U	20	U
Diethyl phthalate	84-66-2	200	---	1200	160		19	U	66		18	J
Di-n-butyl phthalate	84-74-2	1400	---	5100	19	U	19	U	19	U	20	U
Butyl benzyl phthalate	85-68-7	63	---	970	19	U	19	U	19	U	20	U
Bis(2-ethylhexyl) phthalate	117-81-7	1300	---	8300	48	U	47	U	47	U	49	U
Di-n-octyl phthalate	117-84-0	6200	---	6200	19	U	19	U	19	U	20	U
Phenols and Substituted Phenols (µg/kg)												
Phenol	108-95-2	420	---	1200	15	J	74		35		24	
2-Methylphenol	95-48-7	63	---	77	19	U	19	U	19	U	20	U
4-Methylphenol	106-44-5	670	---	3600	15	J	39		61		32	
2,4-Dimethylphenol	105-67-9	29	---	210	24	U	24	U	23	U	24	U
Pentachlorophenol	87-86-5	400	504	690	97	U	94	U	94	U	98	U
Miscellaneous Extractables (µg/kg)												
Benzyl alcohol	100-51-6	57	---	870	19	U	19	U	19	U	20	U
Benzoic acid	65-85-0	650	---	760	190	U	360		100	J	200	U
Dibenzofuran	132-64-9	540	---	1700	19	U	19	U	10	J	20	U
Hexachlorobutadiene	87-68-3	11	---	270	0.96	U	0.99	U	1.0	U	0.99	U
N-Nitrosodiphenylamine	86-30-6	28	---	130	19	U	19	U	19	U	20	U
Organochlorine Pesticides/SVOCs (µg/kg)												
4,4'-DDE	72-54-8	16	---	---	0.96	U	0.99	U	1.0	U	0.99	U
4,4'-DDD	72-55-9	9	---	---	0.96	U	0.99	U	1.0	U	0.99	U
4,4'-DDT	50-29-3	12	---	---	0.96	U	2.3	U	1.0	U	0.99	U
sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT		---	50	69	*0.96*	*U*	*2.3*	*U*	*1.0*	*U*	*0.99*	U
Aldrin	309-00-2	9.5	---	---	0.5	U	0.48	U	0.74	U	1.3	U

Table 4 - Analytical Results Compared to the DMMP Guidelines (from DOF/SEE, 2014b)

Chemical	CAS[1] Number	DMMP Marine Guidelines			Dredged Material Management Unit							
					DMMU 1		DMMU 2		DMMU 3		DMMU 4	
		SL	BT	ML	Value	VQ	Value	VQ	Value	VQ	Value	VQ
Total Chlordane	5103-71-9	2.8	37	---	*0.96*	*U*	*1.2*	*U*	*2.2*	*U*	*2.2*	*U*
trans-Chlordane	5103-73-1				0.8	U	1.2	U	2.2	U	2.2	U
cis-Chlordane	5103-74-2				0.48	U	0.5	U	0.5	U	0.49	U
oxy Chlordane	53494-70-5				0.96	U	0.99	U	1.0	U	0.99	U
cis-Nonachlor	39765-80-5				0.96	U	0.99	U	1.0	U	0.99	U
trans-Nonachlor	27304-13-8				0.96	U	1.1	UJ	1.0	U	0.99	U
Dieldrin	60-57-1	1.9	---	1700	0.96	U	0.99	U	1.0	U	0.99	U
Heptachlor	76-44-8	1.5	---	270	0.48	U	1.4	UJ	1.3	UJ	1.0	UJ
PCBs Aroclors (µg/kg)	---	130	38 [4]	3100	*9.8*	U	*7.3*	J	*8.1*	J	*5.6*	J
Aroclor 1016	5103-73-1				9.8	U	8.9	U	9.1	U	8.9	U
Aroclor 1242	53469-21-9				9.8	U	27.0	U	14	U	18	U
Aroclor 1248	12672-29-6				9.8	U	8.9	U	9.1	U	8.9	U
Aroclor 1254	11097-69-1				9.8	U	7.3	J	8.1	J	5.6	J
Aroclor 1260	11096-82-5				9.8	U	8.9	U	9.1	U	8.9	U
Aroclor 1221	11104-28-2				9.8	U	8.9	U	9.1	U	8.9	U
Aroclor 1232	11141-16-5				9.8	U	8.9	U	9.1	U	8.9	U
Aroclor 1262	37324-23-5				9.8	U	8.9	U	9.1	U	8.9	U
Aroclor 1268	11100-14-4				9.8	U	8.9	U	9.1	U	8.9	U
Dioxins/Furans (ng/kg)	---		5/15 [5]	---	*See Table 4-3*							

Notes:

[1] Chemical Abstract Service Registry Number

[2] As no SL value exists to trigger toxicity testing, this chemical will only be evaluated for its bioaccumulative potential.

[3] 2-Methylnaphthalene is not included in the summation for total LPAH for the Marine SLs.

[4] This value is normalized to total organic carbon, and is expressed in mg/kg carbon.

[5] For dispersive sites in Grays Harbor, the 5 ng/kg 2,3,7,8-TCDD concentration or 15 ng/kg TEQ will be used as a trigger for the requirement to perform bioaccumulation testing.

Validation Qualifiers (VQ):

J - The reported concentration is an estimated value.
U - The analyte was analyzed for, but was considered not detected at the reporting limit or reported value.
UJ - The analyte was analyzed for, and the associated quantitation limit was an estimated value.

Table 5 - Dioxin/Furan Results (from DOF/SEE, 2014b)

Chemical Name	TEF	Dredged Material Management Unit															
		DMMU 1				DMMU 2				DMMU 3				DMMU 4			
		Value (ng/kg)	VQ	TEQ (U = 0)	TEQ (U=1/2 EDL)	Value (ng/kg)	VQ	TEQ (U = 0)	TEQ (U=1/2 EDL)	Value (ng/kg)	VQ	TEQ (U = 0)	TEQ (U=1/2 EDL)	Value (ng/kg)	VQ	TEQ (U = 0)	TEQ (U=1/2 EDL)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1	0.531	U	0	0.2655	1.2		1.2	1.2	1.02	U	0	0.51	0.867	U	0	0.4335
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	1	0.623	J	0.623	0.623	1.86		1.86	1.86	1.67		1.67	1.67	1.22	U	0	0.61
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.224	U	0	0.0112	1.31		0.131	0.131	0.923	J	0.0923	0.0923	0.596	U	0	0.0298
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.992		0.0992	0.0992	5.42		0.542	0.542	4.9		0.49	0.49	2.55		0.255	0.255
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	1.460		0.146	0.146	5.5		0.55	0.55	4.76		0.476	0.476	3.33		0.333	0.333
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.01	16.300		0.163	0.163	113		1.13	1.13	101		1.01	1.01	48.9		0.489	0.489
Octachlorodibenzo-p-dioxin (OCDD)	3E-04	114		0.0342	0.0342	933		0.2799	0.2799	932		0.2796	0.2796	398		0.1194	0.1194
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.1	0.505	U	0	0.02525	1.24	U	0	0.062	1.55		0.155	0.155	0.84	J	0.084	0.084
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.03	0.112	J	0.00336	0.00336	0.434	J	0.013	0.01302	0.454	J	0.01362	0.01362	0.293	U	0	0.004395
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.3	0.157	U	0	0.02355	0.442	J	0.1326	0.1326	0.414	U	0	0.0621	0.256	J	0.0768	0.0768
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.258	J	0.0258	0.0258	0.965	J	0.0965	0.0965	0.922	J	0.0922	0.0922	0.557	U	0	0.02785
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.224	U	0	0.0112	0.757	J	0.0757	0.0757	0.663	J	0.0663	0.0663	0.419	J	0.0419	0.0419
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.1	0.251	J	0.0251	0.0251	1.03	J	0.103	0.103	0.518	U	0	0.0259	0.446	J	0.0446	0.0446
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.0852	U	0	0.00426	0.376	J	0.0376	0.0376	0.297	U	0	0.01485	0.169	J	0.0169	0.0169
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.01	3.76		0.0376	0.0376	14.5		0.145	0.145	15.1		0.151	0.151	7.42		0.0742	0.0742
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.01	0.159	U	0	0.000795	0.647	U	0	0.003235	0.68	J	0.0068	0.0068	0.351	J	0.0035	0.00351
Octachlorodibenzofuran (OCDF)	3E-04	5		0.0015	0.0015	21.6		0.0065	0.00648	35.2		0.01056	0.01056	11.4		0.0034	0.00342
Total TEQ				1.16	1.50			6.30	6.37			4.51	5.13			1.54	2.65

Note: For dispersive sites in Grays Harbor, 5 ng/kg 2,3,7,8-TCDD concentration or 15 ng/kg TEQ is used as a trigger for the requirement to perform bioaccumulation testing.

EDL = Estimated Detection Limit
TEQ = Toxicity Equivalent

Validation Qualifiers (VQ):

J - The reported concentration is an estimated value
U - The analyte was analyzed for, but was considered not detected at the reporting limit or reported value.
UJ - The analyte was analyzed for, and the associated quantitation limit was an estimated value.

Table 6 - Analytical Results Compared to the Washington State Sediment Management Standards (from DOF/SEE, 2014b)

Chemical	CAS[1] Number	SMS - Marine Benthic		Dredged Material Management Unit											
				DMMU 1			DMMU 2			DMMU 3			DMMU 4		
		SQS[2]	CSL[3]	Value (dw)	Value (OC-norm)	VQ	Value (dw)	Value (OC-norm)	VQ	Value (dw)	Value (OC-norm)	VQ	Value (dw)	Value (OC-norm)	VQ
Conventionals															
Gravel (%)		---	---	0.1			1.6			0.1			3.7		
Sand (%)				64.3			26.5			32.6			43.1		
Silt (%)				31.3			56.2			53.7			42.2		
Clay (%)				4.5			15.7			13.5			11		
Total Solids		---	---	69.0			52.76			51.8			60.1		
Total Organic Carbon (%)	---	---	---	0.8			1.91			3.32			2.03		
Metals (mg/kg)															
Arsenic	7440-38-2	57	93	6	---	U	9	---	U	9	---	U	8	---	U
Cadmium	7440-43-9	5.1	6.7	0.5	---		0.9	---		0.7	---		0.7	---	
Chromium	7440-47-3	260	270	22.1	---		37.1	---		33.3	---		29.1	---	
Copper	7440-50-8	390	390	16.8	---		47.6	---		37.7	---		29.8	---	
Lead	7439-92-1	450	530	4	---		7	---		7	---		6	---	
Mercury	7439-97-6	0.41	0.59	0.03	---		0.08	---		0.06	---		0.05	---	
Silver	7440-22-4	6.1	6.1	0.4	---	U	0.5	---	U	0.5	---	U	0.5	---	U
Zinc	7440-66-6	410	960	51	---		94	---		82	---		69	---	
Polycyclic Aromatic Hydrocarbons (mg/kg OC)	130498-29-2														
Total LPAH	---	370	780	*48*	*6.0*	*U*	*154*	*8.1*		*77*	*2.3*	J	*95*	*4.7*	J
Naphthalene	91-20-3	99	170	48	6.0	U	26	1.4	J	32	1.0	U	32	1.6	U
2-Methylnaphthalene [3]	91-57-6	38	64	48	6.0	U	48	2.5	U	47	1.4	U	46	2.3	U
Acenaphthylene	208-96-8	66	66	48	6.0	U	48	2.5	U	47	1.4	U	46	2.3	U
Acenaphthene	83-32-9	16	57	48	6.0	U	48	2.5	U	47	1.4	UJ	46	2.3	UJ
Fluorene	86-73-7	23	79	48	6.0	UJ	48	2.5	UJ	47	1.4	J	46	2.3	J
Phenanthrene	85-01-8	100	480	48	6.0	UJ	97	5.1	J	45	1.4	UJ	63	3.1	UJ
Anthracene	120-12-7	220	1200	48	6.0	UJ	31	1.6	J	47	1.4		46	2.3	
Total HPAH	---	960	5300	*57*	*7.1*		*652*	*34.1*		*335*	*10.1*		*327*	*16.1*	
Fluoranthene	206-44-0	160	1200	26	3.3	J	190	9.9		87	2.6	J	110	5.4	J
Pyrene	129-00-0	1000	1400	31	3.9	J	220	11.5	J	130	3.9	J	100	4.9	J
Benz(a)anthracene	56-55-3	110	270	48	6.0	UJ	43	2.3	J	29	0.9	J	46	2.3	J
Chrysene	218-01-9	110	460	48	6.0	U	61	3.2		32	1.0	J	34	1.7	J
Benzofluoranthenes (b, j ,k)		230	450	*48*	6.0	*U*	*84*	4.4		*57*	1.7	U	37	1.8	J
Benzo(a)pyrene	50-32-8	99	210	48	6.0	U	27	1.4	J	47	1.4	U	46	2.3	U
Indeno(1,2,3-c,d)pyrene	193-39-5	34	88	48	6.0	U	48	2.5	U	47	1.4	UJ	46	2.3	U
Dibenz(a,h)anthracene	53-70-3	12	33	48	6.0	UJ	48	2.5	UJ	47	1.4	U	46	2.3	UJ
Benzo(g,h,i)perylene	191-24-2	31	78	48	6.0	U	27	1.4	J	47	1.4	U	46	2.3	U

Table 6 - Analytical Results Compared to the Washington State Sediment Management Standards (from DOF/SEE, 2014b)

Chemical	CAS[1] Number	SMS - Marine Benthic		Dredged Material Management Unit											
				DMMU 1			DMMU 2			DMMU 3			DMMU 4		
		SQS[2]	CSL[3]	Value (dw)	Value (OC-norm)	VQ	Value (dw)	Value (OC-norm)	VQ	Value (dw)	Value (OC-norm)	VQ	Value (dw)	Value (OC-norm)	VQ
Chlorinated Hydrocarbons (mg/kg OC)															
1,4-Dichlorobenzene	106-46-7	3.1	9	19	2.4	U	19	1.0	U	19	0.6	U	20	1.0	U
1,2-Dichlorobenzene	95-50-1	2.3	---	19	2.4	U	19	1.0	U	19	0.6	U	20	1.0	U
1,2,4-Trichlorobenzene	120-82-1	0.81	1.8	19	2.4	U	19	1.0	U	19	0.6	U	20	1.0	U
Hexachlorobenzene (HCB)	118-74-1	0.38	2.3	0.96	0.1	U	4.1	0.2	U	5.3	0.2		0.99	0.05	
Phthalate Esters (mg/kg OC)												U			U
Dimethyl phthalate	131-11-3	53	53	19	2.4	U	19	1.0	U	19	0.6		20	1.0	U
Diethyl phthalate	84-66-2	61	110	160	20		19	1.0	U	66	2.0	U	18	0.9	J
Di-n-butyl phthalate	84-74-2	220	1700	19	2.4	U	19	1.0	U	19	0.6	U	20	1.0	U
Butyl benzyl phthalate	85-68-7	4.9	64	19	2.4	U	19	1.0	U	19	0.6	U	20	1.0	U
Bis(2-ethylhexyl) phthalate	117-81-7	47	78	48	6.0	U	47	2.5	U	47	1.4	U	49	2.4	U
Di-n-octyl phthalate	117-84-0	58	4500	19	2.4	U	19	1.0	U	19	0.6		20	1.0	U
Phenols and Substituted Phenols (µg/kg dw)															
Phenol	108-95-2	420	1200	15	---	J	74	---		35	---	U	24	---	
2-Methylphenol	95-48-7	63	63	19	---	U	19	---	U	19	---		20	---	U
4-Methylphenol	106-44-5	670	670	15	---	J	39	---		61	---	U	32	---	
2,4-Dimethylphenol	105-67-9	29	29	24	---	U	24	---	U	23	---	U	24	---	U
Pentachlorophenol	87-86-5	360	690	97	---	U	94	---	U	94	---		98	---	U
Miscellaneous Extractables (µg/kg dw)												U			
Benzyl alcohol	100-51-6	57	73	19	---	U	19	---	U	19	---	J	20	---	U
Benzoic acid	65-85-0	650	650	190	---	U	360	---		100	---		200	---	U
Miscellaneous Extractables (mg/kg OC)												J			
Dibenzofuran	132-64-9	15	58	19	2.4	U	19	1.0	U	10	0.3	U	20	1.0	U
N-Nitrosodiphenylamine	86-30-6	11	11	19	2.4	U	19	1.0	U	19	0.6		20	1.0	U
PCBs Aroclors (mg/kg OC)	---	12	65	*9.8*	1.2	U	*7.3*	0.4	J	*8.1*	0.2	U	5.6	0.3	J

Notes:

[1] Chemical Abstract Service Registry Number

[2] Sediment Quality Standard

[3] Cleanup Screening Level

[4] OC-norm - The dry weight value is normalized to total organic carbon, and is expressed in mg/kg carbon.

Validation Qualifiers (VQ):

J - The reported concentration is an estimated value.

U - The analyte was analyzed for, but was considered not detected at the reporting limit or reported value.

UJ - The analyte was analyzed for, and the associated quantitation limit was an estimated value.

APPENDIX C. ANALYSIS OF DREDGING NOISE IMPACTS ON FISH AND MARINE MAMMALS

There are potential impacts to fish and marine mammals associated with both clamshell dredging (Alternative 2) and hydraulic dredging (alternative 3). Thresholds have been established for these group and are discussed in detail below:

Note that noise generated by clamshell dredges is characterized as continuous (or non-pulsed), since the elevated sound pressure occurs over seconds (not milliseconds, as is the case with pulsed noise) (Agness, NMFS, July 23, 2013). The following are noise thresholds for various forms of effects on salmonids for pile driving (impact and vibratory) based on Hastings 2002 and NMFS et al. 2008):

- 150 dB_{RMS}[7] for harassment for continuous noise[8] for fish of all sizes
- 187dB cumulative SEL[9] for injury of fish ≥ 2 grams[10]
- 183dB cumulative SEL for injury of fish < 2 grams
- 206 dB_{peak}[11] for injury of fish of all sizes

The following are continuous noise[2] thresholds based on Popper et al. 2014:

- For fish with swim bladders that are involved in hearing (e.g. herring, sardines, and anchovies)
  - 170 dB_{RMS} for 48 hours for recoverable injury
  - 158 dB_{RMS} for 12 hours for TTS (Temporary Threshold Shift, or complete recovery of hearing loss)

- There is no direct evidence for mortality or potential mortal injury for continuous noise.

- There are no continuous noise thresholds set for fish without swim bladders (sculpin) or those with bladders that are not involved in hearing (salmonids).

NMFS has established peak and cumulative sound level (SEL) thresholds for various marine mammal hearing groups for impulsive sound (impact pile driving and explosives) and non-impulsive (vibratory pile driving, sonar, dredging) for PTS (Permanent Threshold Shift, or the incomplete recovery of hearing loss) and TTS (Temporary Threshold Shift, or complete recovery of hearing loss) (NMFS 2016). Table 1, below, presents continuous thresholds for seals and sea lions

[7] Decibels root mean square over a period of time
[8] Dredging is characterized as continuous noise
[9] Decibels sound exposure level over a 24 hour period (cumulative)
[10] Injury thresholds are based on pile driving (pulsed noise)
[11] Peak sounds in decibels

Table 6. Pinniped TTS and PTS Thresholds for Continuous Sound

Hearing Group	Non-impulsive sound (continuous)	
	TTS Threshold	PTS Threshold
Noise Units	SEL (weighted) (dB SEL)	SEL (weighted) (dB SEL)
Seals	199	219
Sea Lion	181	201

[1] Cumulative sound exposure level weighted over a 24 hour period

Noise levels generated by clamshell dredging in the Snohomish River were as high as 164 dB re 1µPa (dB_{peak}) and 164 dB_{RMS} for a clamshell dredge when the bucket hits the bottom (Pentac Environmental 2011). Another study in Cook Inlet recorded a peak sound level of 124 dB re µP (dB_{peak}) when the clamshell hit a coarse substrate bottom (Dickerson et al. 2001). It is likely that the $_{RMS}$ noise levels for this study was lower than the peak noise levels, although they were not disclosed. This amounts to about 4-5 seconds of elevated noise. This Cook Inlet study also found that softer substrates are more effective at absorbing sound from the impact of the dredge bucket, and the peak sound measurements in these softer substrates did not exceed fish harassment or injury thresholds for continuous sound. Monitoring for noise generated from a hydraulic dredge in the Snohomish River usually hovered around 155-160 dB_{RMS}, but peaked to the uppers 170s when the spuds were placed (SAIC and RPS Evans Hamilton 2011). Another study of hydraulic dredging in Cook Inlet in Alaska measured noise at 100 to 110 db RMS (Clark et. al 2002).

The clamshell noise levels generated in the Snohomish River studies exceed the harassment and TTS levels for fish, and the hydraulic dredge also exceeded the TTS thresholds for fish, but not injury thresholds. Noise levels in these studies do not exceed the thresholds for pinnipeds.

The studies referenced are not directly relatable to the proposed Westhaven dredging, therefore extrapolation is necessary. The substrate in Westhaven Cove Small Boat Basin is generally softer[12] (nearly 50% silt) than that of the Snohomish River, which is nearly 95% sand in the upper portion of the navigation channel and 57% sand in in the lower portions of the navigation channel (USACE 2012). So sound levels are likely to be lower based on the findings in the Cook Inlet study mentioned above. Another variable to consider is the behavior of noise in a confined space like a marina. Studies comparing underwater noise behavior/propagation in a confined spaces like a marina versus a river or open water are lacking. The sound waves generated from dredging would likely not penetrate the rock of the breakwater and shoreline armor and would therefore be reflected back into and scattered throughout the marina waters, but the soft bottom substrate of the marina is likely to be acoustically transparent to sound waves and therefore absorb the sound (IOGP). How scattering versus absorbance would affect noise levels is unknown. Still, even in the confined space, exceedances of noise thresholds for fish or marine

[12] 11.2% clay, 45.9% silt, 41.6% sand, and 1.4% gravel (USACE 2014a)

mammals are not expected. This is primarily because the soft substrate would generate less noise when the bucket hits the bottom or the hydraulic dredge operates.

Based on the Popper et.al reference, the only fish in the marina that would be vulnerable to the effects of noise generated by clamshell dredging would be those with swim bladders that are involved in hearing like herring, and possibly sardine and anchovy, although the effects would be recoverable since permanent injury thresholds are higher than the noise levels in the cited studies. The latter two species would likely occur in low abundance and the work window avoids peak herring abundance during the spawning period. There is potential for harassment of all fish by prompting behavioral responses, since there is potential for the sound levels to exceed the Hasting and NMFS thresholds, but these impacts would be temporary and ambient noise levels are likely already high due to vessel traffic in the marina.

The Engineering and Research Design Center (ERDC) of USACE is in the process of conducting a more comprehensive study of noise levels generated by different dredging methods, as well as ambient noise levels, in a variety of marinas and ports. Once the study is complete, it will serve as another tailored basis to assist in the analysis of noise impacts for future dredging operations.

APPENDIX D: 404 (b)(1) EVALUATION

Westhaven Cove Small Boat Basin Maintenance Dredging and Disposal 2018-2027
Westport, Washington

Substantive Compliance for
Clean Water Act Section 404(b)(1) Evaluation

1. Introduction. The purpose of this document is to record the USACE's evaluation and findings regarding this project pursuant to Section 404 of the Clean Water Act (CWA).

The following actions are covered by this document:

a. The dredging of up to 75,000 cy of material per dredge event over a ten year period of 2018 to 2027 in the Westhaven Cove Small Boat Basin in Grays Harbor.

b. Placement of the dredged material at two nearby open-water disposal locations: South Jetty and Point Chehalis. Disposal at these locations is addressed in the following NEPA document and its associated 404(b)(1) analysis:

Grays Harbor, Washington Navigation Improvement Project General Investigation Feasibility Study Final Supplemental Environmental Impact Statement (USACE 2014b)

Disposal impacts evaluated in the below document are for placement of dredged materials from the Grays Harbor Federal Navigation Channel. The Westhaven Cove sediments fall within the ranges of sediment compositions of the Federal navigation channel reaches, so impacts to the disposal site would similar (USACE 2013 and 2014b). The Cow Point reach of the channel has a similar composition of fine sediment (roughly 45% silt) as those of the Westhaven Cove Small Boat Basin The average composition of Westhaven Cove dredge prism is 46% sand, which is between that of the Hoquiam Reach (56%) and Cow Point (22%). Gravel and is similar to that of the Crossover and South reaches (<1%) and clay is most similar to the Crossover reach (roughly 10%). Material from Westhaven Cove is more of a marine nature than that of the upper reaches of the Navigation channel, but similar to the lower reaches. Both disposal sites are dispersive and any fine grain materials from Westhaven Cove Small Boat Basin would quickly dissipate into the ocean environment in a westward oriented net transport. Additionally, materials from Westhaven Cove Small Boat Basin are designated for open water disposal and did not exceed State of Washington sediment quality standards (see section 3.7 and Appendix B of the EA). Therefore, impacts from disposal of these materials would be similar to the impacts from disposal of materials from the navigation channel. The following discussions of impacts from the 2014 SEIS and associated Section 404(b)(1) Evaluation, Appendix D are hereby incorporated by reference: estuary morphology, including sediment transport and Whitcomb Flats morphology; aquatic vegetation effects, including eelgrass and macroalgae; water quality effects on marine invertebrates and fish, from turbidity and change in dissolved oxygen levels, as well as underwater noise; ESA-listed species, designated critical habitat, and forage fish; historical and cultural resources; air quality and in-air noise; recreation; global climate change and

global greenhouse gases; Indian treaty rights; and disposal site environment, bathymetry, and capacity conditions.

This document addresses the substantive compliance issues of the Clean Water Act 404(b)(1) Guidelines [40 CFR §230.12(a)] and the Public Interest factors [33 CFR §320.4(a), used as a reference].

2. Description of the Proposed Discharge. Public Notice CENWS-PM-ER-17-7 and the Draft Environmental Assessment, Maintenance Dredging and Disposal Westhaven Cove Small Boat Basin 2018-2027, Westport, WA dated July 2017, describes the maintenance dredging of the authorized channel within the boat basin and disposal of the sediments.

Breakwater facilities enclosing the Westhaven Cove Small Boat Basin were authorized by the Rivers and Harbors Act of 30 June 1948 (Pub. Law 80-858, 80th Congress, 2nd Session). Once the Port of Grays Harbor completed construction of the initial (northwest) entrance channel and the first component of berthing facilities within the boat basin in 1952, the United States assumed thereafter the obligation to maintain that 100-foot-wide entrance channel to a depth of -16 feet MLLW. Under the authority of Section 107 of the Rivers and Harbors Act of 1960 (Pub. Law 86-695, 86th Congress, 2nd Session), as amended, in 1979 the Corps constructed a second (southeast) entrance channel, a central access channel within the boat basin, and a turning basin, along with additional improvements to the breakwater facilities. All channel segments and the turning basin footprint are maintained to an authorized depth of -16 feet MLLW. The basin was last dredged in 1998.

3. Project Need. Based on a survey collected in 2014 (USACE, 2014a), shoaling is occurring in the access channel, turning basin, and eastern entrance channel and is impacting safe navigation in and out of the Westhaven Cove Small Boat Basin. Maintenance of safe navigation through the entrance channels and basin is important because access by the fishing fleet moored in this marina is critical to the local economy and USCG access is necessary for marine safety.

4. Project Purpose. The purpose of the project is to return the partially filled-in entrance channels and turning basin to its authorized navigational depth of -16 feet MLLW, and to properly dispose of the dredged material at the South Jetty and Point Chehalis open-water sites. USACE would allow an overdepth tolerance of two feet, for a total depth of up to -18 feet MLLW. The current sediment suitability determination for Westhaven Cove (USACE 2014a), which expires in 2019, characterizes the sediment to -18 feet as suitable open water disposal. In light of a long-standing record of determinations that material to be dredged from the authorized navigation channel was suitable, reached in 1998 and again in 2014, it is expected that subsequent testing after 2019 will again result in a determination of suitability for unconfined aquatic discharge. There would need to be further documentation of the suitability of Westhaven Cove sediments for dredge events that occur after 2019. Based on the outcome, a supplemental EA and amended FONSI may need to be completed for dredge years beyond 2019.

5. Availability of Environmentally Acceptable Practicable Alternatives to Meet the Project Purpose. The alternatives evaluated for this project were as follows:

a. Alternative 1. No Action. Under this alternative, no work would be performed and impacts would not occur. The project purpose would not be accomplished.

b. Alternative 2. Clamshell Dredging and Disposal (preferred alternative). Under this alternative, clamshell dredging would be the method for removal of up to 75,000 cy of material per dredge event (section 2.2 of the EA). This option would have less of an impact on the benthic community because of its lower entrainment rate. Disposal activities would be conducted in accordance with applicable criteria and conditions in the Water Quality Certification from the WA Department of Ecology when conducting activities involving the discharge of dredged material into waters of the U.S. Dredging and disposal activities are scheduled to be performed between 16 July and 31 January. The duration of dredging is expected to be 14-21 days.

c. Alternative 3. Hydraulic Dredging and Disposal. Under this alternative, hydraulic dredging would be the method of removal of dredged materials (section 2.3 of the EA). This option would have greater impacts on the benthic community from the higher entrainment rate, but slightly less turbidity than clamshell since hydraulic dredges tend to suspend less sediment. The dredge amount, period, and duration would be the same as described for the clamshell dredging alternative.

Findings. The USACE rejected Alternative 1 because it would not meet the project purpose and need. Alternative 3 was not recommended due to cost, logistical concerns associated with constraints of loading hydraulically pumped material on a barge, and the higher entrainment rate of benthic oriented organisms associated with hydraulic dredging. Alternative 2 was selected as preferred because of the practicable alternatives it has a lower entrainment rate and achieves the project purpose at a lower cost.

6. Significant Degradation, either Individually or Cumulatively, to the Aquatic Environment.

a. Impacts on Ecosystem Function. Benthic habitat in Westhaven Cove Small Boat Basin would be disturbed by dredging operations and would result in temporary depression of benthic invertebrate populations; however, these populations would be restored in a relatively short time due to recruitment from adjacent areas. USACE has assessed potential impacts to the aquatic ecosystem from maintenance operations and determined that they would be localized to previously disturbed areas, short in duration, and minor in scope. Known impacts of dredging operations on salmonids and forage fish would be reduced and/or avoided through implementation of timing restrictions. Due to these measures, impacts to these important aquatic ecosystem resources should not be significant either individually or cumulatively.

Impacts on ecosystem function from disposal at the South Jetty and Point Chehalis sites are described in the aforementioned SEIS and associated 404(b)(1) analysis.

b. Impacts on Recreational, Aesthetic, and Economic Values. The waterways are part of an industrialized port and no significant adverse effects on recreation or aesthetics are anticipated. Although the waterways are “working waterfronts,” there are recreational opportunities for the public. However, the proposed work would not interfere with the public’s

enjoyment of a working waterfront environment. Throughout the dredging cycle the dredge would be visible from the shore but the project area is comprised of industrial waterways with continual vessel traffic, so the presence of a temporary dredge would not degrade the aesthetics of the existing industrial environment. There would be a positive economic impact to water-dependent businesses and others in the region that rely on access to the water and maintenance of the basin.

Impacts on recreation, aesthetics, and economic values from disposal at the South Jetty and Point Chehalis sites are described in the aforementioned SEIS and associated 404(b)(1) analysis.

Findings. The USACE has determined that the proposed work would have beneficial economic impacts and no significant adverse impacts to aquatic ecosystem functions, recreational, and aesthetic values.

7. Appropriate and Practicable Measures to Minimize Potential Harm to the Aquatic Ecosystem

a. Impact Avoidance Measures. Potential impacts of disposal operations on juvenile and adult salmonids, bull trout, and forage fish would be avoided and/or minimized through implementation of timing restrictions based on in-water work windows. The window established by National Marine Fisheries Service is 16 July to 31 January for in-water work in the Westhaven Cove Small Boat Basin.

b. Impact Minimization Measures. Impacts to fish, shellfish, and other benthic invertebrates entrained or damaged by dredging equipment would be minimized by dredge timing restrictions for juvenile salmonids and forage fish and the use of a clamshell dredge.

Turbidity and dissolved oxygen may be affected and would be monitored during placement of materials and would meet State of Washington water quality standards. A water quality plan would be developed that would adhere to applicable criteria and conditions in the Water Quality Certification for Washington Department of Ecology associated with activities involving the discharge of dredged material into waters of the U.S.

Additional impact minimization measures include the following:

- A spill kit would be onboard the dredge at all times.
- Fuel hoses, oil drums, oil or transfer valves and fittings, etc., shall be checked regularly for drips and leaks, and shall be maintained and stored properly to prevent spills into tribal or state waters.
- Refueling shall be monitored by the contractor for the duration of each event.
- Working within the designated work windows.

c. Compensatory Mitigation Measures. Because environmental impacts are expected to be unsubstantial, as assessed through the Biological Assessments and the Environmental Assessment, no compensatory mitigation measures have been proposed for this action.

Findings. USACE has determined that all appropriate and practicable measures have been taken to minimize potential harm to the aquatic ecosystem. There are no practicably available

placement alternatives that would be less costly and still be consistent with engineering and environmental requirements, while meeting the project need for disposition of dredged material.

8. Other Factors in the Public Interest.

a. Fish and Wildlife. The USACE is consulting with state and federal agencies, as well as the Quinault tribe, to assure careful consideration of fish and wildlife resources. The USACE submitted a Combined Project Biological Assessment for maintenance dredging, of which this dredging action will be one component, to NMFS and USFWS. ESA consultation will be complete upon the finalization of this EA. The USACE also prepared a Biological Assessment for placement of materials at the South Jetty and Point Chehalis disposal sites in accordance with the Endangered Species Act, which was submitted to National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) for their concurrence and consultation was completed in December 2015 with a conclusion of "may effect, not likely to adversely affect" salmonid ESUs, eulachon, marbled murrelet, southern resident killer whale, humpback whale, leatherback sea turtle, green sturgeon.

b. Water Quality. USACE will seek a water quality certification to the Washington Department of Ecology. Once concurrence is received from the State, the USACE would abide by the applicable conditions associated with activities involving the discharge of dredged material into waters of the U.S., to ensure compliance with state water quality standards.

c. Historic and Cultural Resources. The USACE has consulted with the Washington SHPO and the Confederated Tribes of the Chehalis Reservation, the Hoh Indian Tribe, the Quileute Tribe, the Quinault Nation, and the Shoalwater Bay Tribe. The USACE has determined no historic properties would be affected and the Washington SHPO concurred by letter dated August 16, 2016.

d. Activities Affecting Coastal Zones. USACE has determined that this work is consistent to the maximum extent practicable with the enforceable policies of the State Coastal Zone Management Program. A Consistency Determination has been submitted for review by the Washington Department of Ecology.

e. Environmental Benefits. No substantial benefits to the environment have been identified as part of this proposed work.

9. f. Navigation. The dredge may block whichever entrance channel it is dredging but access to the marina would be available via the other entrance channel. The dredge may impinge on the total width available to vessel traffic. Impacts to navigation during disposal would be minimal since the disposal sites are located in a much wider area and vessels would be able to avoid the barge. A Notice to Mariners would be issued, a posting at the harbor office, and notification of the owner the Port of Grays Harbor would be done before dredging and disposal operations are initiated. The project would result in an improvement to the currently shallow condition of the marina and its access channels, returning them to their authorized depths of -16 feet MLLW, and an additional two feet of allowable over depth. Therefore, the

USACE has determined that only a minor, temporary disruption of traffic will result from disposal operations.

Findings. USACE has determined that this project is within the public interest based on review of the public interest factors.

10. Conclusions. Based on the analyses presented in project NEPA and ESA documents, as well as the following 404(b)(1) Evaluation and application by analogy of the General Policies for the Evaluation of Public Interest, the USACE finds that this project complies with the substantive elements of Section 404 of the Clean Water Act.

404(b)(1) Evaluation [40 CFR §230]

Potential Impacts on Physical and Chemical Characteristics (Subpart C)

Substrate [230.20] The disposal of material removed from the Westhaven Cove Small Boat Basin and its access channels during maintenance dredging would return it to the authorized depth of -16 feet MLLW. Material is predominantly a mixture of silt and sand, with minor fractions of gravel and clay. Sediments to be removed were tested in 2014 and approved for open water disposal and beneficial use under the DMMP guidelines administered by the USACE, EPA, Ecology, and DNR. See Appendix B of the EA for the suitability determination. There were no detectable or non-detectable[13] exceedances of State of Washington sediment quality standards (SDS)

1. **Suspended Particulate/Turbidity [230.21]** Placement of dredged material would result in a temporary increase in turbidity and suspended particulate levels in the water column. Sediment in the marina is comprised primarily of sand and silt with a smaller percentage of gravel and clay. Sand and most silts would sink rapidly to the bottom, while a small percentage of finer material is expected to remain in suspension. Any increase in turbidity associated with disposal operations would be minimal and of short duration.

2. **Water Quality [230.22]** No significant water quality effects are anticipated. Temporary decreases in DO associated with increased suspended sediments are possible in the immediate plume area associated with the release of material from the barge. Dredging in the summer months would cause greater DO declines than doing so in the winter months due to the added impacts of algal blooms and subsequent die-offs, causing diurnal fluctuations in DO. The Washington Department of Ecology (Ecology) sets limitations on the amount of sediment that is allowed to be re-suspended during placement of dredged materials (and other in-water activities). The USACE is seeking a water quality certification from Ecology and would comply with applicable water quality conditions and criteria issued in the permit associated with the discharge of dredged material into the waters of the U.S. If these established criteria cannot be met then dredging would stop until a solution is found to comply with the criteria.

~~3.~~ **Current Patterns and Water Circulation [230.23]** Placing accumulated sediment from the Westhaven Cove Small Boat Basin would not obstruct flow, change the direction or velocity of water flow/circulation, or otherwise change the dimensions of the receiving water body. The material would be disposed of at the South Jetty and Point Chehalis open water disposal sites, which would quickly disperse into the ocean environment.

4. **Normal Water Fluctuations [230.24]** The disposal of material dredged from the Westhaven Cove Small Boat Basin would not impede normal riverine processes and tidal fluctuations.

[13] A 'detected' exceedance typically means that the concentration exceeds a guideline value (usually the screening level) and is above the quantitation limit of the analytical instrument. A 'non-detected' exceedance means that the analyte wasn't detected by the instrument, but the quantitation limit is above the guideline value. This latter case results in some uncertainty, because it's possible the analyte is present at a concentration above the guideline value (but below the quantitation limit).

5. Salinity Gradients [230.25] The disposal of material from the Westhaven Cove Small Boat Basin would not divert or restrict riverine processes or tidal flows, thus it would not change the salinity gradients in the project area.

Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D)

1. Threatened and Endangered Species [230.30] Pursuant to Section 7 of the Endangered Species Act, the USACE submitted a Combined Project Biological Assessment for maintenance dredging, of which this dredging action will be one component, to NMFS and USFWS. This document concluded that maintenance dredging in the Westhaven Cove Small Boat Basin "*may affect, not likely to adversely affect*" Coastal/Puget Sound bull trout, lower Columbia Chinook salmon, upper Willamette Chinook salmon, Columbia River chum, eulachon, green sturgeon, southern resident killer whale, and marbled murrelet. The USACE also prepared a Biological Assessment in accordance with the Endangered Species Act for the placement of materials at the Point Chehalis and South Jetty sites. It was submitted to National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) for their concurrence and consultation was completed in December 2015 with a conclusion of "may effect, not likely to adversely affect" salmonid ESUs, eulachon, marbled murrelet, southern resident killer whale, humpback whale, leatherback sea turtle, green sturgeon.

2. Aquatic Food Web [230.31] Turbidity associated with disposal operations may interfere with feeding and respiratory mechanisms of benthic, epibenthic, and planktonic invertebrates. Some sessile invertebrates at the dredge location and disposal sites may suffer mortality from entrainment. Several studies have found that benthic infauna recolonize dredging and disposal sites quickly, but that they may never reach mature equilibrium benthic communities. More mobile epibenthic organisms would be expected to escape the immediate impact area without significant injury. Potential impacts of disposal operations on salmonids and forage fish would be reduced and/or avoided with dredge timing restrictions.

3. Wildlife [230.32] Noise associated with disposal operations may have an effect on birds and marine mammals in the project vicinity. The impacts of any sound disturbance may result in displacement of animals rather than injury. Increases in turbidity associated with dredged material disposal could reduce visibility in the immediate vicinity of disposal activities, thereby reducing foraging success for any marine animals in the area. Any reduction in availability of food would be highly localized and would subside rapidly upon completion of the dredging and disposal operations. Disposal operations are not expected to result in a long-term reduction in the abundance and distribution of prey items. No breeding or nesting areas for birds would be directly impacted. Impacts associated with placement of materials to harbor seals and sea lions that haul out in the area and use the waters around the placement sites are expected to be localized and temporary. Animals would likely avoid the dredge and its impact area. Even if an individual(s) changes their behavior in response to noise generated from the action, the limited exposure time to the clamshell hitting the bottom (roughly four to five seconds every 15-20 seconds) would not result in any long-term impacts to the individual or seal and/or sea lion populations.

Potential Impacts to Special Aquatic Sites (Subpart E)

1. Sanctuaries and Refuges [230.40] The Grays Harbor National Wildlife Refuge is located on the Northern shore of Grays Harbor near the town of Hoquiam and the Oyhut Wildlife Recreation area is located across from the Westhaven Cove Small Boat Basin at the North entrance of Grays Harbor near Ocean Shores. The proposed maintenance dredging of the Westhaven Cove Small Boat Basin does not pose a threat to this either of these areas. The proposed project would not adversely impact any designated refuge area.

2. Wetlands [230.41] Dredged material would not be placed in wetlands. Use of the aquatic disposal sites would not alter the inundation patterns of any wetlands in the project vicinity.

3. Mudflats [230.42] Mudflats do exist along the margins of the turning basin and access channels; however, none of them overlap with the navigation channel. Use of the aquatic disposal sites would not alter the inundation patterns of any mudflats in the project vicinity.

4. Vegetated Shallows [230.43] Dredged material disposal would not be conducted onto or adjacent to vegetated shallows.

5. Coral Reefs [230.44] Not applicable.

6. Riffle and Pool Complexes [230.45] Not applicable.

Potential Effects on Human Use Characteristics (Subpart F)

1. Municipal and Private Water Supplies [230.50] Not applicable.

2. Recreational and Commercial Fisheries [230.51] Disposal is timed to avoid critical life stages of salmonids. Commercial fishing fleets and recreational boaters would be notified of dredge activities.

3. Water-related Recreation [230.52] Recreational use may be temporarily affected; however, there is a long-term benefit by providing safe access and moorage in the marina.

4. Aesthetics [230.53] Localized, temporary increases in noise and visual disturbance would occur while equipment is operating, but are not expected to be significant.

5. Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves [230.54] Westhaven and Westport Light State Parks are located nearby between the City of Westport and the Pacific Ocean. No adverse effect to any national seashores, wilderness areas, research sites and similar preserves is expected as a result of the proposed disposal operations.

Evaluation and Testing (Subpart G)

1. General Evaluation of Dredged or Fill Material [230.60] The material to be dredged is predominantly sand and silt. The material meets the suitability guidelines of the inter-agency DMMP for open-water disposal.

2. Chemical, Biological, and Physical Evaluation and Testing [230.61] Testing of this material was done in 2014, and results are as indicated in Appendix B of the EA.

Action to Minimize Adverse Effects (Subpart H)

1. Actions Concerning the Location of the Discharge [230.70] The effects of the discharge would be minimized by using in-water work timing restrictions and the use of existing open water disposal sites in Grays Harbor that are used for the much larger volumes of dredged material removed annually from the deep-draft navigation channel.

2. Actions Concerning the Material to be Discharged [230.71] No treatment substances or chemical flocculates would be added to the sediments prior to placement. The material was tested in 2014 and meets the criteria for open water disposal.

3. Actions Controlling the Material after Discharge [230.72] Methods for reducing the potential for erosion, slumping, or leaking would not be employed in the dispersive aquatic disposal sites, as the intent of the action is to keep the material in littoral transport along the project area..

4. Actions Affecting the Method of Dispersion [230.73] The existing open water disposal sites have been selected because they were designed to make use of currents and circulation patterns to disperse the dredged material.

5. Actions Related to Technology [270.74] Appropriate machinery and methods of transport of the material for discharge would be employed. All machinery would be properly maintained and operated.

6. Actions Affecting Plant and Animal Populations [270.75] The timing of the proposed discharge operations would minimize the potential for adverse effects to fish and wildlife. No vegetation of concern exists within the aquatic disposal sites.

7. Actions Affecting Human Use [230.76] The discharge would not result in damage to aesthetically pleasing features of the aquatic landscape.

8. Other Actions [230.77] Not applicable.

Application by Analogy of the General Policies for the Evaluation of Public Interest [33 CFR §320.4, used as a reference]

1. Public Interest Review [320.4(a)] The USACE finds these actions to be in compliance with the 404(b)(1) guidelines and in the public interest.

2. Effects on Wetlands [320.4(b)] No wetlands would be altered by the disposal operations.

3. Fish and Wildlife [320.4(c)] USFWS, NMFS, and the Quinault Indian Tribe were consulted to ensure that direct or indirect loss and damage to fish and wildlife resources attributable to disposal operations would be minimized.

4. Water Quality [320.4(d)] USACE would abide by the applicable conditions of the Section 401 Water Quality Certification issued by Washington Department of Ecology associated with the discharge of dredged material into the waters of the U.S., to ensure compliance with state water quality standards.

5. Historic, Cultural, Scenic, and Recreational Values [320.4(e)] No wild and scenic rivers, historic properties, National Landmarks, National Rivers, National Wilderness Areas, National Seashores, National Recreation Areas, National Lakeshores, National Parks, National Monuments, estuarine and marine sanctuaries, or archeological resources would be adversely impacted by disposal operations.

6. Effects on Limits of the Territorial Sea [320.4(f)] Disposal operations would not alter the coastline nor baseline from which the territorial sea is measured for the purposes of the Submerged Lands Act and international law.

7. Consideration of Property Ownership [320.4(g)] Aquatic dredged material placement from authorized navigation channels is subject to the Federal navigation servitude.

8. Activities Affecting Coastal Zones [320.4(h)] The proposed placement is consistent to the maximum extent practicable with the enforceable policies of the approved State Coastal Zone Management Program.

9. Activities in Marine Sanctuaries [320.4(i)] None of the proposed activities would occur within a Federal marine sanctuary.

10. Other Federal, State, or Local Requirements [320.4(j)]

a. National Environmental Policy Act. An Environmental Assessment (EA) has been prepared to satisfy the documentation requirements of NEPA.

b. Endangered Species Act. In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed threatened or endangered species. The USACE submitted a Combined Project Biological Assessment for maintenance dredging, of which this dredging action will be one component, to NMFS and USFWS. ESA consultation will be

complete upon the finalization of this EA. The USACE also prepared a Biological Assessment in accordance with the Endangered Species Act for the placement of materials at the Point Chehalis and South Jetty sites. It was submitted to National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) for their concurrence and consultation was completed in December 2015 with a conclusion of "may effect, not likely to adversely affect" ESA listed species.

c. Clean Water Act. The USACE must demonstrate compliance with the substantive requirements of the Clean Water Act. This document records the USACE's evaluation and findings regarding this project pursuant to Section 404 of the Act. Public Notice CENWS-PM-ER-17-7 and a Joint Aquatic Resources form served as the basis for seeking a Section 401 Water Quality Certification from the Washington Department of Ecology. The USACE would abide by applicable conditions of the Water Quality Certification associated with the discharge of dredged material into the waters of the U.S., to ensure compliance with water quality standards.

d. Coastal Zone Management Act. The Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal agencies to carry out their activities in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved Coastal Zone Management Program. The proposed action is considered consistent to the maximum extent practicable with the State Program.

e. Marine Protection, Research, and Sanctuaries Act. Section 102 of the Marine Protection, Research, and Sanctuaries Act (MPRSA) authorizes the EPA to promulgate ocean dumping criteria and designate ocean disposal sites. This project would not involve ocean disposal of dredged material.

f. National Historic Preservation Act. The National Historic Preservation Act (16 USC 470) requires that the effects of proposed actions on sites, buildings, structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. The USACE has consulted with the Washington SHPO and the Confederated Tribes of the Chehalis Reservation, the Hoh Indian Tribe, the Quileute Tribe, the Quinault Nation, and the Shoalwater Bay Tribe. The USACE has determined no historic properties would be affected and the Washington SHPO concurred by letter dated August 16, 2016.

g. Fish and Wildlife Coordination Act. The Fish and Wildlife Coordination Act (16 USC 470) requires that wildlife conservation receive equal consideration and be coordinated with other features of water resource development projects. A Fish and Wildlife Coordination Act Report (FWCA) is not required for the proposed disposal of sediments dredged from Westhaven Cove Small Boat Basin because the FWCA does not apply to operations and maintenance activities on existing projects.

11. Safety of Impoundment Structures [320.4(k)] Not applicable.

12. Floodplain Management [320.4(l)] Disposal operations would not alter any floodplains.

13. Water Supply and Conservation [320.4(m)] Not applicable.

14. Energy Conservation and Development [320.4(n)] Not applicable.

15. Navigation [320.4(o)] Disposal of dredged material is a necessary element of maintaining Westhaven Cove Small Boat Basin at the authorized depth of -16 feet MLLW for use by tenant and visiting vessels, as reflected in the purpose and need for the proposed action.

16. Environmental Benefits [320.4(p)] Placement of dredged material in the designated dispersive aquatic sites would retain these sediments in littoral transport along the project area.

17. Economics [320.4(q)] There are substantial economic benefits from the proposed project on the water-dependent businesses as well as local businesses that rely on the marina for commercial and recreational fishing. USACE has determined that this project is economically justified.

18. Mitigation [320.49(r)] Potential impacts of disposal operations on salmonids and forage fish would be avoided through implementation of timing restrictions and the use of the existing South Jetty and Point Chehalis open water disposal sites in Grays Harbor. No wetlands would be impacted and no long-term impacts to the aquatic resources are anticipated; therefore mitigation is not necessary.

APPENDIX E: COASTAL ZONE CONSISTENCY DETERMINATION

COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

Westhaven Cove Small Boat Basin Maintenance Dredging and Disposal 2018 to 2027
Westport, Washington

Submitted by the U.S. Army Corps of Engineers,

Seattle District

US Army Corps
of Engineers®
Seattle District

1 INTRODUCTION AND PROJECT DESCRIPTION

The Coastal Zone Management Act of 1972, as amended, requires Federal agencies to carry out their activities in a manner which is consistent to the maximum extent practicable with the enforceable policies of the approved state Coastal Zone Management (CZM) Programs. The Shoreline Management Act of 1972 (SMA; RCW 90.58) is the core of Washington's CZM Program. Primary responsibility for the implementation of the SMA is assigned to the local government.

According to 15 CFR Ch. IX § 930.30, the Federal Government is directed to ensure "that all Federal agency activities including development projects affecting any coastal use or resource will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of approved management programs." The Westhaven Cove Small Boat Basin Maintenance Dredging and Disposal project occurs within the coastal zone governed by multiple municipalities including Grays Harbor County and the city of Westport. The Westhaven Cove Small Boat Basin is also known as Westport Marina and Westhaven Marina.

Maintenance Dredging and Disposal are activities undertaken by a Federal agency; the following constitutes a Federal consistency determination with the enforceable policies of the approved Washington Coastal Zone Management Program.

Authority

Breakwater facilities enclosing the Westhaven Cove Small Boat Basin were authorized by the Rivers and Harbors Act of 30 June 1948 (Pub. Law 80-858, 80th Congress, 2nd Session). Once the Port of Grays Harbor completed construction of the initial (northwest) entrance channel and the first component of berthing facilities within the boat basin in 1952, the United States assumed thereafter the obligation to maintain that 100-foot-wide entrance channel to a depth of -16 feet MLLW. Under the authority of Section 107 of the Rivers and Harbors Act of 1960 (Pub. Law 86-695, 86th Congress, 2nd Session), as amended, in 1979 the Corps constructed a second (southeast) entrance channel, a central access channel within the boat basin, and a turning basin, along with additional improvements to the breakwater facilities. All channel segments and the turning basin footprint are maintained to an authorized depth of -16 feet MLLW. *Action Area*

The action area includes the Westhaven Cove Small Boat Basin at Westport in Grays Harbor, Washington (Figure 1). Channel widths and depths are shown in Figures 2 and 3.

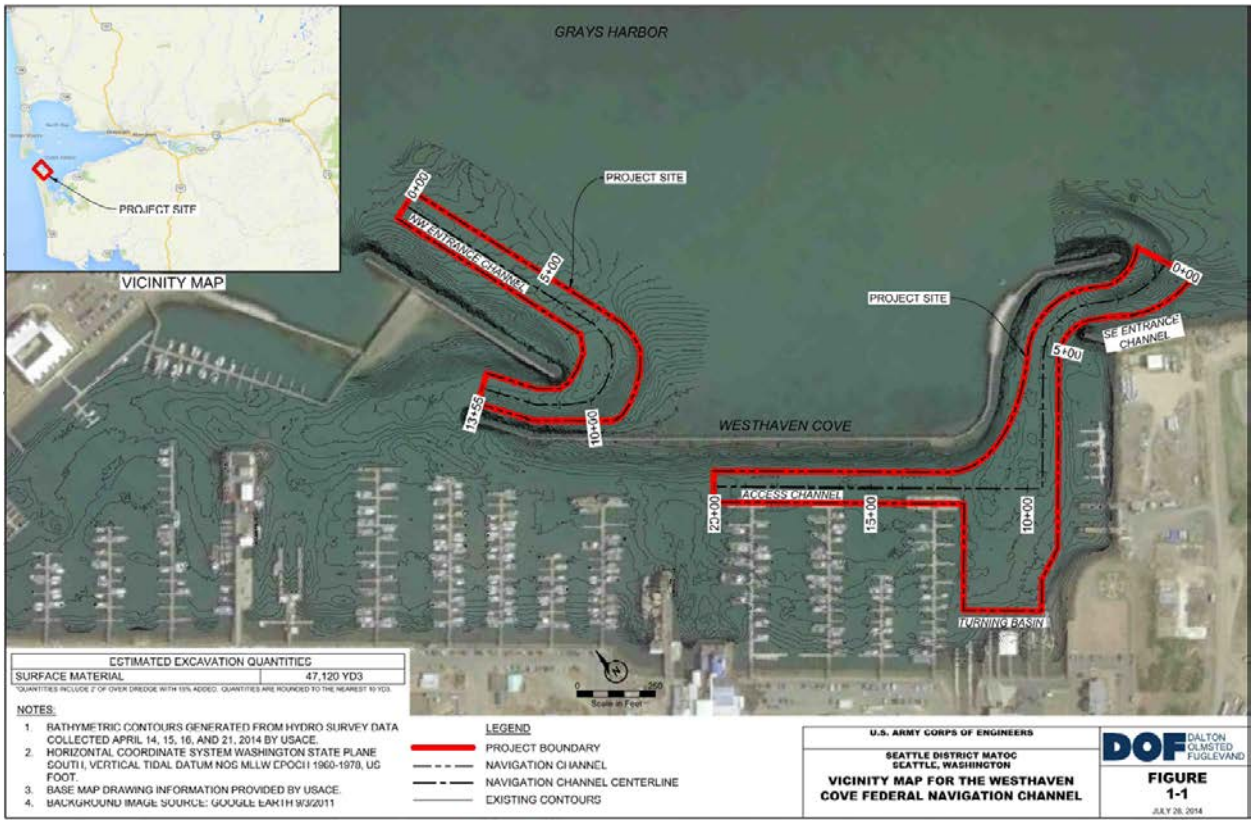


Figure 1. Navigation channel features at Westhaven Cove Small Boat Basin in Westport, WA

Figure 2. Westhaven Cove Small Boat Basin – NW Channel

Figure 3. Westhaven Cove Small Boat Basin – SE Entrance Channel, Turning Basin, and Access Channel

Background

The Westhaven Cove Small Boat Basin is operated by the Port of Grays Harbor. The marina is located on the eastern side of Pt. Chehalis near the mouth of Grays Harbor and provides 60 acres of protected moorage for a fishing fleet and the U.S. Coast Guard Westport Station. The Westport Marina at Point Chehalis is protected with a Federal groin and revetment system that includes six groins and approximately 7,000 feet of exposed and buried revetment. A series of breakwaters helps protect the marina.

Grays Harbor is located at the mouth of the Chehalis River on the Washington coast, about 45 miles north of the Columbia River and 110 miles south of the entrance to the Strait of Juan de Fuca. The communities of Westport, Aberdeen, Hoquiam, and Cosmopolis (all are served by the Port of Grays Harbor) are all located near the mouth of the Chehalis River at the eastern end of Grays Harbor. The harbor is 15 miles long and 11 miles wide and enclosed by two long spits, Point Brown to the north and Point Chehalis to the south.

2 PURPOSE

The purpose of the project is to maintain authorized depths at the two entrance channels, access channel, and turning basin of the Westhaven Cove Small Boat Basin for the safe transit of vessels.

3 PROPOSED ACTION

The USACE proposes to conduct maintenance dredging in the Westhaven Cove Small Boat Basin. Several rivers flow into Grays Harbor including the Chehalis River, the Humptulips River, and the Hoquiam River. These rivers and the adjacent Pacific Ocean deposit millions of cubic yards of sediment annually into Grays Harbor resulting in an embayment with considerable dynamic shoaling. The communities of Westport, Aberdeen, Hoquiam, and Cosmopolis are all located near the mouth of the Chehalis River at the eastern end of Grays Harbor and are served by the Port of Grays Harbor. Up to a total of 75,000 cubic yards (cy) of dredged material per dredging event may be dredged and disposed of at two disposal sites over a ten-year period (Figure 4). This dredging amount was determined based on a survey conducted in 2014.

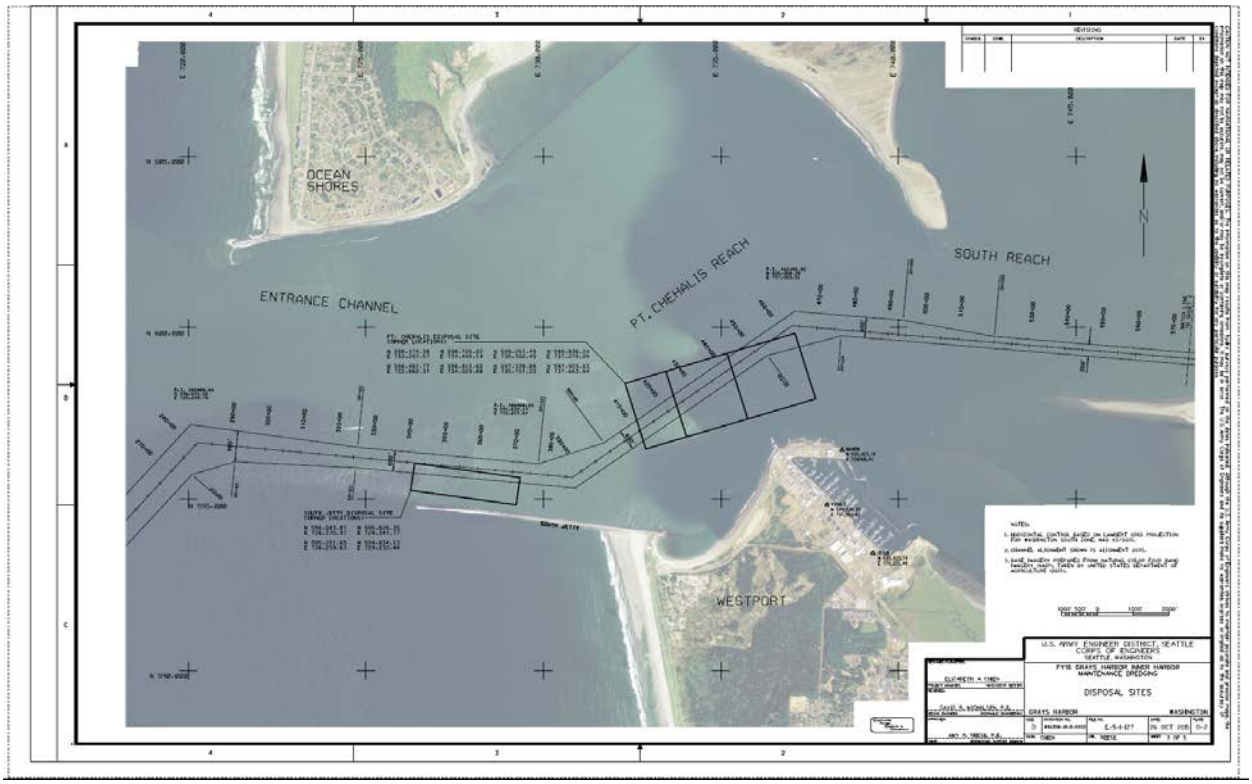


Figure 4. Point Chehalis and South Jetty Disposal Sites

4 JURISDICTION AND CONSISTENCY REQUIREMENTS

Washington's CZM Program defines the State's coastal zone to include the 15 counties with marine shorelines, which includes Grays Harbor County. Primary responsibility for the implementation of the SMA is assigned to local government. The City of Westport, where the dredging would occur, fulfilled this requirement with the Shoreline Master Program (SMP) for the City of Westport. The City of Westport has elected to implement the State Shoreline Management Act, Chapter 90.58 RCW through the adoption of goals and policies in Chapter 9 of the City of Westport's Comprehensive Plan, and Chapter 17.32 of the development regulations in the City of Westport's Municipal Code.

The proposed maintenance dredging location is the Westhaven Cove Small Boat Basin, located in Grays Harbor and designated in the City of Westport's Shoreline Management Program as Marine Industrial.

4.1 Consistency Requirements

The USACE is seeking state concurrence with this Coastal Zone Management Act (CZMA) Consistency Determination for the proposed Westhaven Cove Small Boat Basin dredging from the Washington Department of Ecology (Ecology) per CZMA Section 307 (c) and 15 CFR 930.34. Under Washington's program, Federal projects that are reasonably anticipated to affect uses or resources of the coastal zone must demonstrate consistency with the enforceable policies of the approved State coastal zone management program. Each of these Washington policies is addressed below.

4.1.1 State Environmental Policy Act (SEPA)

The proposed action is a Federal action subject to NEPA, but not SEPA as there is no state action to be taken for this project. USACE has complied with the requirements of NEPA regarding this project.

4.1.2 Clean Water Act

The Federal Clean Water Act requires Federal agencies to protect waters of the United States. USACE prepared a Section 404(b)(1) evaluation to document its findings demonstrating compliance. USACE prepared and distributed a Section 404 public notice for public comment in connection with an Environmental Assessment prepared for this project. Dredged material would be discharged at approved open-water disposal sites (Figure 5). No wetlands would be affected by the project.

Water Quality Certification under Section 401 of the Act for discharges of dredged or fill material into the waters of the U.S. assures compliance with state water quality standards. The USACE is seeking a 401 Water Quality Certification from the Washington Department of Ecology and would comply with applicable requirements and conditions associated with the discharge of dredged material into the waters of the U.S. Coordination will be concluded prior to the finalization of the EA.

4.1.3 Clean Air Act

Section 176 of the Clean Air Act (CAA), 42 USC 7506(c), prohibits Federal agencies from approving any action that does not conform to an approved state or Federal implementation plan. Maintenance dredging and disposal activities under this project would result in emissions that are clearly *de minimis* and would constitute maintenance dredging where no new depths are required and no new disposal sites are designated, so the project is exempt from any requirement to conform to a State Implementation Plan under 40 CFR 93.153 (c)(2)(ix).

4.1.4 Ocean Resources Management Act

The proposed action includes sites in Grays Harbor on the Pacific Ocean. The enforceable policies of Chapter 43.143 RCW apply to coastal waters of the Pacific Ocean. The proposed action consists of maintenance dredging and disposal activities for safe transit to and from the Westhaven Cove Small Boat Basin. There would be no significant long-term impacts to coastal or marine resources or uses of the Pacific Ocean.

4.1.5 Energy Facility Site Evaluation

The proposed project does not involve siting of energy facilities in the State of Washington and this policy does not apply to the proposed action.

4.1.6 Shoreline Management Act

In June 2014, a consistency determination was done for the placement of materials at the South Jetty and Point Chehalis open water disposal sites dredged from the Federal navigation channel under the Grays Harbor Navigation Improvement Project. The Westhaven Cove sediments fall within the ranges of sediment compositions of the Federal navigation channel reaches, so impacts to the disposal site would similar (USACE 2013 and 2014b of the EA). The Cow Point reach of the channel has a similar composition of fine sediment (roughly 45% silt) as those of the Westhaven Cove Small Boat Basin. The average composition of Westhaven Cove dredge prism is 46% sand, which is between that of the Hoquiam Reach (56%) and Cow Point (22%). Gravel is similar to that of the Crossover and South reaches (<1%) and clay is most similar to the Crossover reach (roughly 10%). Material from Westhaven Cove is more of a marine nature than that of the upper reaches of the Navigation channel, but similar to the lower reaches. Both disposal sites are dispersive and any fine grain materials from Westhaven Cove Small Boat Basin would quickly dissipate into the ocean environment in a westward oriented net transport. Additionally, materials from Westhaven Cove Small Boat Basin are designated for open water disposal and did not exceed State of Washington sediment quality standards (see section 3.7 and Appendix B of the EA). Therefore, impacts from disposal of Westhaven Cove materials would be similar to the impacts from disposal of materials from the navigation channel addressed in the 2014 consistency determination.

As a basis for the dredging of materials in Westhaven Cove Small Boat Basin, the City of Westport Shoreline Master Program (SMP) will be used. Their SMP was within the original City of Westport Comprehensive Plan, adopted in 1998 and revised in 1999, but in June 2013 Washington Department of Ecology (WDOE) approved the City of Westport's Shoreline Master Program (SMP) limited amendment. The limited amendment was to transfer the authority for shoreline permitting decisions from the planning commission and city council to a professional Land Use Hearing Examiner. An updated SMP for the City of Westport has been approved by

WDOE in 2017. There is also a Grays Harbor Estuary Management Plan developed by the Grays Harbor Regional Planning Commission, but it is not a shoreline management plan. The document states that "the planning commission does not have the authority to adopt or enforce the plan since it is a planning and coordinating agency". Furthermore, the document states that "each city and the county have incorporated the plan into their policies, review criteria, Shoreline Master Programs, and comprehensive plans as appropriate."

Applicable policies of the City of Westport 2017 SMP are presented in Section 5, below, and details are provided on how the proposed maintenance dredging and disposal activities are consistent with policy is in bold italics.

5 CONSISTENCY DETERMINATION

The following elements of the City of Westport Shoreline Master Program are applicable to the project. Responses regarding consistency are below in bold italics.

3 SHORELINE ENVIRONMENT DESIGNATIONS

3.01.02 Marina Aquatic

12.1.1.1 Purpose

The purpose of the Marina Aquatic shoreline environment designation is to protect, restore, and manage the unique characteristics and resources of shoreline jurisdiction waterward of the OHWM within the Westport Marina in the Westhaven Cove.

12.1.1.2 Designation Criteria

Assign the Marina Aquatic shoreline environment designation to lands waterward of the OHWM that currently support high intensity uses related to the Westport Marina.

12.1.1.3 Management Policies

Development within the Marina Aquatic shoreline environment designation shall be consistent with the following policies:

1. Allow new over-water structures only for water-dependent uses, public access, or ecological restoration.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development.

2. Limit the size of new over-water structures to the minimum necessary to support the structure's intended use.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development.

3. Encourage multiple uses of over-water facilities to reduce the impacts of development and increase effective use of water resources in shoreline jurisdiction.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. No overwater structures are proposed as part of the action.

4. Minimize interference with surface navigation, consider impacts to public views, and allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration in the location and design of all developments and uses.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. Although there will be temporary impacts to navigation while dredging occurs, the proposed action will result in an improvement to navigation in the marina by maintaining navigable depths in the entrance and access channels and turning basin.

5. Design and manage shoreline uses and modifications to prevent degradation of water quality and alteration of natural hydrographic conditions.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. Water quality will be monitored during the proposed action and will adhere to criteria in the 401 water quality certification. No permanent impacts to water quality or hydrography would occur.

6. Prohibit uses that adversely affect the ecological functions of critical saltwater habitats except where necessary to achieve the objectives of RCW 90.58.020, and then only when the impacts are mitigated.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. Although there will be temporary impacts to the ecological function in the marina while the dredging is performed via disturbance and decreases in water quality and to the benthic community for a couple of months post-dredging, to the extent the dredged area constitutes critical saltwater habitat no permanent impacts are expected as communities are expected to fully recover.

4 General Policies & Regulations

4.02 Archaeological and Historic Resources

The purpose of this section is to prevent destruction or damage to sites containing irreplaceable archaeological or historic resources within shoreline jurisdiction. The policies and regulations apply to areas of known or supposed archaeological and historic resources as recorded by the Washington State Department of Archaeology and Historic Preservation (DAHP), the city, affected tribes, as well as sites that are uncovered during site development.

4.02.01 Policies

A. Encourage consultation with professional archaeologists and historians to identify areas containing potentially valuable archaeological or historic resources, and establish procedures for salvaging the resource. Appropriate agencies to consult include, but are not limited to, the DAHP, the Confederated Tribes of the Chehalis Reservation, the Shoalwater Bay Tribe, and the Quinault Indian Tribe.

The Corps consulted with DAHP, the Confederated Tribes of the Chehalis Reservation, the Shoalwater Bay Tribe, the Quinault Indian Tribe, the Hoh Tribe and the Quileute Tribe for this project. The Corps determined that no historic properties would be affected by the project and DAHP concurred with the Corps determination.

4.03 Environmental Impacts and Mitigation

This section addresses the requirements for no net loss of ecological functions in shoreline jurisdiction by requiring mitigation for shoreline impacts. These provisions apply throughout shoreline jurisdiction.

4.03.01 Policy

A. Avoid or mitigate impacts to shoreline jurisdiction to ensure the standards of no net loss to function are met.

Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. No permanent impacts to the shoreline would occur as a result of the action.

4.03.02 Regulations

A. The environmental impacts of development proposals shall be analyzed and include measures to mitigate environmental impacts not otherwise avoided or minimized by compliance with the SMP and other applicable regulations.

Consistent. The proposed dredging is maintenance of an existing navigation channel and not a new development.

B. Where required, mitigation measures shall be applied in the following sequence of steps listed in order of priority:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations;
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
6. Monitoring the impact and the compensation projects and taking appropriate corrective measures.

C. In determining appropriate mitigation measures applicable to development in shoreline jurisdiction, lower priority measures should be applied only where higher priority measures are determined to be infeasible or inapplicable.

D. Mitigation shall not be required that exceeds what is necessary to assure the development will result in no net loss of ecological functions in shoreline jurisdiction.

E. When compensatory measures are appropriate pursuant to the mitigation priority sequence above, preferential consideration shall be given to measures that replace the impacted functions directly and in the immediate vicinity of the impact. However, alternative compensatory mitigation measures that have been identified within a watershed plan, and address limiting factors or other critical resource conservation needs in shoreline jurisdiction may be authorized. Authorization of compensatory mitigation measures may require appropriate safeguards, terms, or conditions as necessary to ensure no net loss of ecological functions.

Consistent. The proposed dredging is maintenance of an existing navigation channel and no permanent impacts are expected. Temporary impacts to water quality will be minimized by best management practices and adherence to water quality criteria issued by the Washington Department of Ecology. Benthic communities would recolonize the project footprint within a couple of months.

4.08 Public Access

This section applies to shoreline public access, including the protection of scenic vistas. As provided in WAC 173-26-221(4), public access to the shorelines of the state is the ability of the

public "…to reach, touch, and enjoy the water's edge, to travel on the waters of the state, and to view the water and the shoreline from adjacent locations." Allowing for appropriate public access to shorelines of the state is a key component of the SMA. Consideration must be given to protection of the visual quality of the shoreline resource and to maintenance of view corridors to and from the water and adjacent shoreland features.

4.08.01 Policies

A. Protect and enhance the public's visual and physical access to shorelines of the state to the greatest extent feasible.

B. Increase the amount and diversity of public access opportunities to shorelines where consistent with the natural shoreline character, property rights, and public safety.

C. Maintain, enhance, and increase public access in accordance with the following priorities unless found infeasible:

    1. Maintain existing public access sites and facilities, rights-of-way, and easements.

    2. Enhance public access opportunities on existing public lands and easements.

    3. Acquire property or easements to add opportunities for public access to shorelines.

    4. Encourage public access to shorelines as part of shoreline development.

D. Ensure shoreline development plans by public entities include public access measures unless it is unsafe, unsecure, or negatively affects the shoreline environment designation.

E. Ensure that development does not impair or detract from public access to the water through standards for design, construction, and operation.

F. Provide public access as close as feasible to the OHWM without adversely affecting a sensitive environment and design with provisions for access for all persons.

G. Development, uses, and activities on or near the shoreline should not impair or detract from the public's visual access to the water.

H. Balance enhancement of views with the protection of shoreline vegetation that may partially impairs views.

I. Maintain, enhance, and preserve visual access of the shoreline from street-ends, public utilities, and rights-of-way.

J. The city's Comprehensive Parks and Recreation plan should consider and identify existing public access points and potential future access points.

Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. The proposed action will temporarily impair public access during the dredging, but will ultimately sustain public access to marina via boat by maintaining navigable depths in the access channels.

4.08.02 Regulations

A. Public access shall be designed to achieve no net loss of ecological functions. Where impacts are identified, mitigation shall be required.

Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. No permanent impacts are expected.

B. Public access shall be required for the following shoreline developments and uses:

1. Shoreline recreation in accordance with SMP Section 5.13;
2. New structural public flood hazard reduction measures, such as dikes and levees in accordance with SMP Section 4.06;
3. Shoreline development by public entities, including the city, state agencies, and public utility districts; and
4. All other development not subject to the restrictions in SMP Section 4.08.02(C).

C. Public access is not required when any of the following conditions are present:

1. The subdivision of land into four or fewer parcels;
2. A development consisting of a building containing four or fewer dwelling units;
3. Unavoidable health or safety hazards to the public exist that cannot be prevented by any feasible means;
4. Inherent security requirements of the use cannot be satisfied through the application of alternative design features or other solutions;
5. Public access results in significant environmental impacts that cannot be mitigated;
6. Significant undue and unavoidable conflict between any access provisions and the proposed or adjacent uses would occur and cannot be mitigated;
7. The cost of providing the access, easement, or amenity is unreasonably disproportionate to the total long-term cost of the proposed development;
8. Legal limitations preclude public access;
9. The subject site is separated from the shoreline waterbody by intervening public or private improvements such as roads, existing structures, and/or other similar improvements, and public access is not desirable or feasible; or
10. Adequate public access already exists along the subject shoreline and there are no gaps or enhancements that need to be addressed;

D. In addressing SMP Section 4.08.02(C) above, the applicant must demonstrate that all feasible alternatives to allow public access have been exhausted, including:

1. Regulating access by such means as limiting hours of use to daylight hours;
2. Separating uses by such means as fences, terracing, landscaping, signage, etc.;
3. Providing access that is physically separated from the proposal, such as a nearby street end, an offsite viewpoint, or a trail system; or
4. Where physical access is not feasible, visual access is provided instead.

E. The Shoreline Administrator must support a determination that no public access is feasible in the findings in the underlying permit.

F. Physical public access shall be designed to connect to existing public rights-of-way or existing or future public access points on adjacent or abutting properties. Appropriate design and safety standards should be utilized in the design of the access.

G. Public access facilities shall be compatible with adjacent private properties using vegetative buffering or other techniques to define the separation between public and private space.

H. Where there is an irreconcilable conflict between water-dependent shoreline uses, physical public access, and maintenance of views from adjacent properties, water-dependent uses and physical public access shall have priority, unless there is a compelling reason to the contrary.

Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. The proposed action will temporarily impair public access during the dredging, but will ultimately sustain public access to marina via boat by maintaining navigable depths in the access channels.

4.08 Water Quality

Prevent impacts to water quality and stormwater quantity that would result in a loss of ecological functions, a significant impact to aesthetic qualities, or recreational opportunities.

4.09.01 Policies

1. Protect shoreline jurisdiction by ensuring that surface water quality and quantity regulations are administered by the city.
2. Prevent impacts to water quality and stormwater quantity that would result in net loss of shoreline ecological function, significant impacts to aesthetic qualities, or recreational opportunities.

Consistent. USACE would comply with the applicable conditions of a water quality certification from WDOE and develop a monitoring plan based on criteria and conditions associated with the disposal of dredged material into waters of the U.S. This plan could include water quality monitoring, and slowing down and/or ceasing work, if necessary, to minimize impacts.

4.09.02 Regulations

1. All development in shoreline jurisdiction shall comply with the appropriate requirements of the SMP and the applicable city stormwater management programs and regulations.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. The proposed action will comply with the requirement of this SMP. The dredging would not affect stormwater management.

5 Specific Shoreline Use Policies & Regulations

5.02 General Shoreline Use

These policies and regulations apply to all developments and uses within shoreline jurisdiction, whether or not a shoreline permit or written letter of exemption is required.

5.02.01 Policies

A. Prohibit agricultural, forest practice uses, and parking as a primary use in the city's shoreline jurisdiction.

   Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. None of these uses are part of the proposed action.

B. Shorelines are a limited ecological and economic resource. Apply the following priorities in the order presented below when determining allowable uses or resolving use conflicts in shoreline jurisdiction:

   1. Reserve appropriate areas for protecting and restoring ecological functions to control pollution and prevent damage to the natural environment and public health;
   2. Reserve shoreline areas for water-dependent and associated water-related uses. Mixed-use developments that include water-dependent uses may be allowed when specific conditions are met;
   3. Reserve shoreline areas for other water-related and water-enjoyment uses that are compatible with ecological protection and restoration objectives;
   4. Locate single-family residential uses in the Shoreline Residential shoreline environment designation where they can be developed without significant impact to ecological functions or displacement of water-dependent uses; and
   5. Limit non-water-oriented uses to those locations where the uses described above are inappropriate or where non-water-oriented uses demonstrably contribute to the objectives of the SMA.

F. Do not permit uses where they would result in a net loss of shoreline ecological functions, adversely affect the quality or extent of habitat for native species, adversely

affect other habitat conservation areas, or interfere with navigation or other water-dependent uses.

G. Avoid adverse impacts to the shoreline or, if that is not feasible, minimize to the extent feasible and mitigate unavoidable impacts.

Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development. The proposed action is a water dependent activity. Although there will be temporary impacts to the ecological function in the marina while the dredging is performed and for a couple of months post-dredging to the benthic community, no permanent impacts are expected as communities are expected to fulling recover. Temporary impacts to ecological functions would be minimized by implementing best management practices, and monitoring and adhering to water quality criteria.

5.02.02 Regulations

These regulations apply to all developments and uses within shoreline jurisdiction, whether or not a shoreline permit or written letter of exemption is required.

A. Use and development standards shall not apply retroactively to existing, legally established structures, or uses and developments in place at the time of the adoption of the SMP update. Existing structures, uses and developments, including residential appurtenances, may be maintained, repaired, and operated within shoreline jurisdiction and the shoreline buffers established in the SMP, if the existing use or development does not cease for more than three consecutive years.

B. Development shall comply with the most restrictive bulk and dimensional requirements in WMC Title 17 or SMP Section 4.04.02(B).

C. Shoreline developments shall locate water-oriented portions along the shoreline and place other facilities landward or outside shoreline jurisdiction, where feasible.

D. Accessory uses, such as parking, stormwater management facilities, and utilities shall be located outside of shoreline jurisdiction where feasible. If they are to be located in shoreline jurisdiction, accessory uses shall be limited to water-oriented uses, uses that support physical or visual shoreline access for substantial numbers of the public, or preferred uses in the shoreline.

E. Shoreline uses and developments shall be designed to complement the setting of the property and minimize glare. Shoreline applicants shall demonstrate efforts to minimize potential impacts to the extent feasible.

F. Agriculture, forest practice uses, and parking as a primary use (see SMP Section 5.12) are prohibited in shoreline jurisdiction.

Consistent. The proposed action is a water dependent activity. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development.

6 Shoreline Modification Policies & Regulation

6.04 Dredging and Dredge Material Disposal

This section is intended to cover dredging and dredge material disposal. It is not intended to cover mining or other excavations waterward of the OHWM that are incidental to construction of an authorized use or modification such as bulkhead replacements, boat launch ramp installation, or pile placement. These in-water substrate modifications should be conducted in accordance with all applicable regulations for the proposed use found in the SMP.

6.04.01 Policies

A. Conduct dredging in a manner that utilizes mitigation sequencing and ensures no net loss of shoreline ecological functions.

Consistent. The proposed dredging is maintenance of an existing navigation feature in the Westhaven Cove Small Boat Basin, and does not constitute construction of new development.

B. Allow dredging for navigation channels, marine terminal berths, and mooring structures when needed to assure safe and efficient accommodation of existing navigational uses, only when significant ecological impacts are minimized and mitigated.

Consistent. The proposed dredging is maintenance of an existing navigation channel and no permanent impacts are expected. Temporary impacts to water quality will be minimized by best management practices and adherence to water quality criteria issued by the Washington Department of Ecology associated with the discharge of dredged material. Benthic communities would recolonize the project footprint within a couple of months.

C. Restrict maintenance dredging of established navigation channels, basins, and marine terminal berths to maintaining previously dredged or existing locations to their authorized depths and widths.

Consistent. The proposed action is maintenance of the existing navigation channels to their authorized depths and prisms.

D. Permit dredging as part of restoration or enhancement, public access, flood storage as part of a flood hazard management program, or navigation if deemed consistent with the SMP.

Consistent. The proposed dredging is necessary for navigation and access to boat slips in the marina.

E. Prohibit dredging waterward of the OHWM to obtain fill except when the dredge material is necessary for the restoration of shoreline ecological functions.

Consistent. The purpose of the dredging is to maintain navigation and access to boat slips in the marina, not for excavation of fill.

F. Site new development to avoid the need for new and maintenance dredging. Where avoidance is not feasible, ensure the site is designed to minimize the need for dredging.

Consistent. The proposed dredging is to maintain an existing navigation channel within the marina.

G. Prefer the disposal of dredged material on land outside of the shoreline jurisdiction to open water disposal. Where in water disposal is the established method, such as for channel maintenance dredging, projects should consider the beneficial use of materials where possible. The city should work with state and federal regulatory agencies to identify and implement beneficial use activities and projects utilizing dredge material disposal.

Consistent. The placement locations are at two dispersive open water disposal sites, South Jetty and Point Chehalis, that fall within the jurisdiction of the Grays Harbor County SMP. A coastal zone consistency determination has been made for the disposal of materials at these two sites. As further reflected in the EA associated with this project, open-water disposal is consistent with the Federal standard for the selection of dredged material disposal sites for USACE navigation projects. As further reflected in the EA, placement in these dispersive sites serves the beneficial purpose of retaining the marine sands within the littoral cell.

H. Coordinate local, state, and federal permit requirements for dredging.

Consistent. The Corps will obtain all necessary and applicable permits.

6.04.02 Regulations

Dredging

1. Dredging and dredge disposal proposals shall utilize the mitigation sequence in SMP Section 4.03. Where adverse impacts are unavoidable, a mitigation plan shall be prepared by a qualified professional consistent with the provisions of SMP Appendix 2: Section 1.07(E).

   Consistent. The proposed dredging is maintenance of an existing navigation channel and no permanent impacts are expected. Temporary impacts to water quality will be minimized by best management practices and adherence to water quality criteria issued by the Washington Department of Ecology. Benthic communities would recolonize the project footprint within a couple of months.

2. Dredging shall only be permitted for the following activities:

   a. Development of new or expanded moorages or water-dependent industrial or port uses where there are no other feasible alternatives, significant ecological impacts are minimized, and mitigation is provided.

   b. Development of essential public facilities where no feasible alternative location exists.

c. Restoration or enhancement of shoreline ecological functions and processes that benefit water quality or fish and wildlife habitat.

d. Trenching to allow the installation of underground utilities, if no feasible alternative location for the utilities exists, and:

   1) Impacts to fish and wildlife habitat are minimized to the maximum extent feasible; and

   2) Appropriate BMPs are employed to prevent water quality impacts or other environmental degradation.

e. Establishment, expansion, relocation, or reconfiguration of navigation channels where necessary to assure the safe and efficient accommodation of existing navigational uses.

f. Maintenance dredging of established navigation channels and basins, including the existing Westport Marina basin in the Westhaven Cove, so long as the dredging is restricted to the previously dredged or authorized location, depth, and width. Such dredging shall be considered an exempt activity so long as it meets the requirements of SMP Section 7.04.04.

g. Flood hazard reduction.

Consistent. The proposed dredging is maintenance of existing navigation channels in the Westport Marina.

3. Applicants must receive all applicable state and federal permits prior to the commencement of any dredging.

   Consistent. The Corps will obtain all necessary and applicable permits.

4. Dredging shall be prohibited for the primary purpose of obtaining fill material, except when necessary for the restoration of shoreline ecological functions and consistent with the following:

   a. Dredge material must be placed waterward of the OHWM.

   b. The project must be associated with either a MTCA or CERCLA habitat restoration project or, if the project is approved through a shoreline conditional use permit, the project may be another significant habitat enhancement project.

   Consistent. The purpose of the dredging is to maintain navigation and access to boat slips in the marina, not for excavation of fill.

6 STATEMENT OF CONSISTENCY

Based on the above evaluation, USACE has determined that the proposed maintenance dredging and disposal activities are consistent to the maximum extent practicable with the

enforceable policies specified in the City of Westport Shoreline Master Program. Taking into consideration the evaluation of consistency with the other enforceable policies, the proposed action is thus considered to be consistent to the maximum extent practicable with the enforceable policies of the approved State of Washington Coastal Zone Management Program.

APPENDIX F: USFWS ESA SECTION 7 CONCURRENCE LETTER

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503

MAY 24 2017

In Reply Refer To:
01EWFW00-2017-I-0277
X Ref: 13410-2008-I-0368-R001
13410-2008-I-0466
13410-2011-I-0125
13410-2011-I-0340
13410-2011-I-0383
01EWFW00-2014-I-0444

Evan Lewis
Chief, Environmental and Cultural Resources Branch
Attn: N. Gleason
Corps of Engineers, Seattle District
P.O. Box 3755
Seattle, Washington 98124-3755

Dear Mr. Lewis:

Subject: Maintenance Dredging Programmatic of Selected Federal Authorized Navigational Channels with Disposal of Dredged Material at Designated Disposal Sites

This letter is in response to your December 16, 2016, request for the U.S. Fish and Wildlife Service's (Service) concurrence with your determination that the Maintenance Dredging Programmatic "may affect, but is not likely to adversely affect" bull trout (*Salvelinus confluentus*), designated bull trout critical habitat, marbled murrelet (*Brachyramphus marmoratus*), streaked horned lark *(Eremophila alpestris strigata*), designated streaked horned lark critical habitat, western snowy plover *(Charadrius alexandrinus nivosus*), and designated western snowy plover critical habitat. The project involves maintenance dredging at eight locations in western Washington: Swinomish Channel, Keystone Harbor, Snohomish River, Duwamish Waterway, Port Townsend Harbor, Quillayute River, Grays Harbor Navigation Channel, and Westhaven Cove Small Boat Basin Entrance Channels and placement of sediment

at 12 beneficial disposal sites. We received your letter and Biological Assessment on December 16, 2017. On March 16, 2017, the Service received an email from the U.S. Army Corps of Engineers (Corps) adding two beneficial use sites to the Swinomish Channel dredging site. This informal consultation has been conducted in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA).

The Corps proposes routine maintenance dredging in Federal Navigation Channels around Puget Sound and along the coast in Grays Harbor and the Quillayute River. The maintenance dredging program encompasses periodic removal of accumulated material from navigation channels using three methods of dredging: clamshell dredge, hydraulic pipeline dredge, or hopper dredge. Disposal of dredged material can occur at authorized multi-user open-water disposal sites, such as Dredged Material Management Program (DMMP) managed sites as well as placement in the nearshore zone for beneficial use (Table 1). Beneficial use includes placement of material to enhance beaches, replace eroded shoreline, soften armored shoreline, and provide sediment for beach renourishment and local sediment drift cells. Disposal of sediment at DMMP sites is addressed through a previous consultation (USFWS 01EWFW00-2015-I-0724). The Corps defined the duration of the project as occurring for the next 25 years (spanning from 2017 through 2042).

The project involves numerous conservation measures to minimize project impacts. Specific conservation measures to avoid, minimize, or reduce impacts to listed species include:

1) Work will occur within the approved in-water work window for each location.

2) Containment berms are constructed with on-site material to hold dredge slurry water to allow infiltration into substrate (Keystone Beach, Site A, and Point Chehalis Revetment Extension Mitigation Site).

3) Dredged material is placed in the dry at low tide (Keystone Beach, First Beach, Site B, and Point Chehalis Revetment Extension Mitigation Site).

4) Clamshell dredging operation will be conducted in a manner that minimizes spillage of excess sediments from the dredge bucket and transport barge to minimize effects to water quality.

The known occurrence of bull trout, bull trout critical habitat, marbled murrelet, streaked horned lark, streaked horned lark critical habitat, western snowy plover, and western snowy plover critical habitat, near or at the dredging and disposal sites is provided in Table 2. Some of the sites, for example the Swinomish Navigation Channel, are a couple miles long, and therefore, only a portion of the site may be in critical habitat or may have a species occurring nearby.

Table 1. The eight dredging sites, their disposal sites, and dredging method.

Dredging Site	Disposal Site(s)		Dredging Method
	In-Water Disposal	Upland Disposal	
Swinomish Channel	DMMP Site		Clamshell
	Flowlane North: -60 to -120 feet MLLW*		Clamshell or Hydraulic
	Flowlane South: -60 to -120 feet MLLW		Clamshell or Hydraulic
Keystone Harbor		Keystone Beach: supratidal and upper intertidal zone	Clamshell or Hydraulic
Snohomish River	DMMP Site		Clamshell
		Jetty Island: +15 feet to +1 feet MLLW	Hydraulic
		Parcel "O": trucked to other regional sites	Hydraulic
		Riverside: trucked to other regional sites	Hydraulic
Duwamish Waterway	DMMP Site		Clamshell
Port Townsend Harbor	DMMP Site		Clamshell
Quillayute River		Site A: trucked to other regional sites or First Beach	Hydraulic
	First Beach	First Beach: Intertidal above MLLW line	Hydraulic
	Site B	Site B: placed on crest of Quillayute Spit	Hydraulic
Grays Harbor Navigation Channel	DMMP Site		Clamshell or hopper
	Half Moon Bay: placed as close to shore as possible with a barge		Clamshell or hopper
	South Beach: placed as close to shore as possible with a barge		Clamshell or hopper
		Point Chehalis Revetment Extension Mitigation Site: Intertidal above +9 MLLW	Hopper Dredge
Westhaven Cove Small Boat Basin Entrance Channels	DMMP Site		Clamshell or hydraulic

* MLLW – mean lower low water

Table 2. The known occurrence of bull trout, bull trout critical habitat, marbled murrelet, streaked horned lark, streaked horned lark critical habitat, western snowy plover, and western snowy plover critical habitat near of at the dredging and beneficial disposal sites.

	Bull Trout	Bull Trout Critical Habitat*	Marbled Murrelet	Streaked Horned Lark	Streaked Horned Lark Critical Habitat	Western Snowy Plover	Western Snowy Plover Critical Habitat
Dredging Sites and Their Beneficial Use Disposal Sites							
Swinomish Navigation Channel	x	M	x				
• Flowlane North	x		x				
• Flowlane South	x		x				
Keystone Harbor	x		x				
• Keystone Beach			x				
Snohomish River Navigation Channel	x	M, F	x				
• Jetty Island	x	M	x				
• Riverside	x	F					
• Site "O"	x	F					
Upper Duwamish Waterway	x	F					
Port Townsend Navigation Channel	x		x				
Quillayute River	x		x				
• Site A	x		x				
• Site B	x		x				
• First Beach	x		x				
Grays Harbor Navigation Channel	x	M, F	x	x	x	x	x
• South Beach	x		x	x	x	x	x
• Half Moon Bay	x	M	x	x	x	x	x
• Point Chehalis Revetment Extension Mitigation Site	x	M	x	x	x	x	x
Westhaven Cove Entrance Channels	x	M	x	x	x	x	x

* M – marine waters. F – freshwater, lower mainstem river. Designates whether marine or freshwater Primary Constituent Elements are present at the dredging or beneficial disposal sites.

Bull Trout

The action area contains foraging, migration, and overwintering habitat for anadromous bull trout. We expect that bull trout could occur throughout the action area.

Dredging and disposal operations will result in degraded water quality and impact to benthic invertebrates. Temporary impacts to water quality, including episodic increases in turbidity, suspended sediments, and reduced dissolved oxygen concentrations, will be intermittent and will not be measurable beyond 600 feet down current of the dredging and disposal locations. The loss of benthic invertebrates would be at depths greater than that where normal bull trout foraging occurs. New sediment, placed in the supratidal and intertidal areas, will provide increased habitat for benthic invertebrates and will be rapidly colonized from the surrounding area. These effects will be intermittent and limited in physical extent and duration and will not result in injury or significant disruption to normal bull trout behavior.

In marine waters, bull trout prey species (e.g. forage fish and juvenile salmonids) concentrate in nearshore waters where organisms from lower trophic levels are abundant. Dredging and disposal activities may occur adjacent to documented forage fish spawning location. These activities may result in temporary elevated turbidity and suspended sediment levels but will not result in the long-term destruction or permanent removal of documented forage fish spawning habitat.

Because the action will maintain the authorized channel depths and contours along the ten Federal Navigational Channels which are frequently and repeatedly dredged, we do not expect the action to measurably degrade habitat function. With successful implementation of the conservation measures, we do not expect bull trout to be measurably affected by the temporary effects of the action. Further, the long term effects of the action are not expected to measurably disrupt normal bull trout behaviors (feeding, moving, and sheltering). Therefore, the effects to bull trout are considered insignificant.

Designated Bull Trout Critical Habitat

The new critical habitat regulations (81 FR 7214) replaces the term Primary Constituent Element (PCE) with physical or biological features (PBFs). This shift in terminology does not change the approach used in conducting our analysis, whether the original designation identified PCEs, PBFs, or essential features. In this letter, the term PCE is synonymous with PBF or essential features of critical habitat.

The proposed dredging and disposal at beneficial sites occurs at eight locations within Puget Sound and along the western coast of Washington at Grays Harbor and Quillayute River. Dredging occurs both within marine and tidally influenced portions of lower mainstem rivers. Table 1 identifies the dredging and beneficial disposal sites located within or near bull trout designated critical habitat.

The dredging and beneficial disposal sites within or near bull trout critical habitat provide marine and/or freshwater foraging, migrating, and overwintering habitat for subadult and adult bull trout. Of the nice PCEs, five are located within the marine waters (PCEs: #2, #3, #4, #5, and #8). In the tidally influenced rivers, all PCEs except PCE #6, spawning and rearing habitat, are present. We have examined the anticipated effects of the proposed action on the applicable PCEs below.

PCE #1 - Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.

The proposed action will have no effect on this PCE.

PCE #2: Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.

Dredging and disposal activities may affect the migratory corridor and/or habitats as a result of suspended sediment releases. Dredging will result in impacts to water quality, including episodic increases in turbidity, suspended sediments, and reduced dissolved oxygen

concentrations. Placement of sediment at beneficial disposal sites will result in increased turbidity and suspended sediments when incoming tides inundate disturbed areas. However, water quality impacts will not preclude bull trout movement through the area and any effects will be temporary. The migration habitat will not be permanently altered, destroyed, or degraded. We anticipate that any impacts are unlikely to result in a measurable effect to the function of this critical habitat as a migratory corridor. No other physical, biological, and/or water quality barriers to the migratory corridor are anticipated as a direct or indirect result of the proposed action. Therefore, effects to this PCE are considered to be insignificant.

PCE #3: An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.

Dredging and disposal activities may impact the food base of bull trout through a reduction of prey individuals. Dredging will result in the loss of benthic invertebrates, however, this occurs at a depth greater than that where normal bull trout foraging occurs. Sediment disposal will result in decreased prey abundance (benthic invertebrates) due to placement of sediment within the intertidal zone as well as ground disturbance resulting from pipeline placement or method of placing sediment within the containment berms. These effects will be temporary as the new sediment will provide increased habitat for benthic invertebrates and will be rapidly colonized from the surrounding area. Therefore, effects to this PCE are expected to be insignificant.

PCE #4: Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.

The proposed action would not include any activities that would increase or decrease habitat complexity in the action area. Dredging all occurs in deep water and will not alter the shoreline aquatic environment and habitat complexity. Placement of sediment in the intertidal zone will benefit the nearshore habitat forming processes that establishes and maintains shoreline aquatic environment. No shoreline habitat features will be permanently removed, and there will be no long-term effects to processes that establish and maintain these environments. Therefore, effects to this PCE are expected to be insignificant.

PCE #5: Water temperatures ranging from 2 to 15°C (36 to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range.

The proposed action does not include any activities that would directly or indirectly alter water temperature. Therefore, the proposed action is expected to have no effect to this PCE.

PCE #7: A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.

The proposed action does not include any activities that would directly or indirectly alter the natural hydrograph. Therefore, no effects are anticipated to this PCE.

PCE #8: Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

Dredging and disposal activities will result in temporary short-term impact to water quality. As described in PCE #2, dredging will result in impacts to water quality, including episodic increases in turbidity, suspended sediments, and reduced dissolved oxygen concentrations. Placement of sediment at beneficial disposal sites will result in increased turbidity and suspended sediments when incoming tides inundate disturbed areas. However, these effects will be temporary and of short duration and therefore, the effects to this PCE will be insignificant.

PCE #9 - Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

The project is not anticipated to result in the introduction of nonnative predatory, inbreeding, or competitive species into the action area. Therefore, the proposed action will have no effect to this PCE.

Marbled Murrelets

Marbled murrelets are known to use all the marine waters within Puget Sound and also along the coast of Washington. We expect that marbled murrelets could be present in the action area.

For reasons summarized above (*see* Bull Trout), we expect that dredging and beneficial use of dredged materials will have limited impacts to water quality, substrates, and benthic invertebrates, and will have no measurable short- or long-term effect on forage fish abundance and availability. Dredging and disposal activities will result in measurable temporary increases in in-air sound levels. However, these effects will be intermittent and limited in physical extent and duration. Because the proposed action will largely maintain existing conditions, we conclude that the action will not measurably degrade marine habitat functions that are important to marbled murrelets or their prey.

With full and successful implementation of the conservation measures, effects of the proposed action are not expected to result in measurable effects to marbled murrelets and are therefore considered insignificant.

Western Snowy Plover, Western Snowy Plover Critical Habitat, Streaked Horned Lark, and Streaked Horned Lark Critical Habitat

Damon Point and the Oyhut State Wildlife Recreation Area, located along the Washington Coast in Grays Harbor County, contain suitable nesting and foraging habitats for the western snowy plover and streaked horned lark. Western snowy plover nesting has not been documented in these areas since 2006, but they are considered essential for the long-term survival and recovery of the species. A nesting population of streaked horned larks is present on Damon Point and at the Oyhut State Wildlife Recreation Area.

The Service has designated Damon Point and the Oyhut State Wildlife Recreation Area as critical habitat for both the western snowy plover (77 FR 36805; June 19, 2012; Unit WA 2 - Damon Point) and streaked horned lark (78 FR 61561; October 3, 2013; Unit 3A Damon Point/Oyhut). Western snowy plovers occupy sandy beaches, inland dune systems, salt flats, mud flats, seasonally exposed gravel bars, and dredge spoil sites. The PCEs of designated critical habitat include: (PCE #1) areas that are below heavily vegetated areas or developed areas and above the daily high tides; (PCE #2) shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low-water flow and annual high tide or high-water flow, subject to inundation but not constantly under water, that support essential food sources; (PCE #3) surf- or water-deposited organic debris, such as seaweed (including kelp and eelgrass) or driftwood located on open substrates, that supports and attracts food, provides cover or shelter from predators and weather, and assists in avoidance of detection for nests, chicks, and incubating adults; and (PCE #4) minimal disturbance from the presence of humans, pets, vehicles, or human-attracted predators, which provide relatively undisturbed areas for individual and population growth and for normal behavior.

Damon Point's open landscape context and sparse, low-growing vegetation provide the physical and biological features that are essential to support nesting and wintering streaked horned larks. The PCEs of designated critical habitat include: (PCE #1) areas having a minimum of 16 percent bare ground with sparse, low-stature vegetation composed primarily of grasses and forbs less than 13 inches (33 cm) in height; and (PCE #2) large (300 acre), flat (0 to 5 percent slope) areas, or smaller areas, within a landscape context that provides visual access to open water or fields.

Dredging activities within the Grays Harbor Navigation Channel and Westhaven Cove Small Boat Basin Entrance Channels and sediment disposal at the three beneficial use sites in Grays Harbor are all over 0.5 mile from Damon Point and one mile from the Oyhut State Wildlife Recreation Area where suitable western snowy plover and streaked horned lark nesting habitat is located. Based on the distance from suitable nesting habitat we do not expect measureable effects to nesting western snowy plovers, streaked horned larks, or their young. For reasons summarized above *(see* Bull Trout and Marbled Murrelets), we expect that the proposed action will have limited impacts. Because the proposed action's direct and indirect effects will not measurably degrade shoreline habitats or habitat functions that are important to the western snowy plover or the streaked horned lark, these effects are considered insignificant.

Dredging and disposal activities will result in localized impacts and will have no measurable effects on the PCEs for both western snowy plover and streaked horned lark designated critical habitat. Dredging and disposal activities will not degrade shoreline habitats or habitat functions that are important to western snowy plovers, streaked horn larks, or their prey. Damon Point and Oyhut State Wildlife Recreation Area are likely to continue changing, but we expect that they will persist and continue to function as suitable western snowy plover and streaked horned lark nesting and foraging habitat into the future. Therefore, the action's effects to the PCEs and designated western snowy plover and streaked horned lark critical habitat are considered insignificant. The proposed action will not prevent the PCEs of critical habitat from being maintained, and will not degrade the current ability to establish functioning PCEs at the scale of the action area.

This concludes informal consultation pursuant to the regulations implementing the ESA (50 CFR 402.13). This project should be re-analyzed and re-initiation may be necessary if 1) new information reveals effects of the action that may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation, 2) if the action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this consultation, and/or 3) a new species is listed or critical habitat is designated that may be affected by this project.

If you have any questions about this letter or our joint responsibilities under the ESA, please contact Jim Muck at (360) 753-9586 or jim_muck@fws.gov.

Sincerely,

for Eric V. Rickerson, State Supervisor
Washington Fish and Wildlife Office

Literature Cited

USFWS (U.S. Fish and Wildlife Service). 2015. Letter of Concurrence: Continued Use of Multiuser Dredged Material Disposal Site in Puget Sound and Grays Harbor. Reference No.: 01EWFW00-2015-I-0724. Washington Fish and Wildlife Office, Lacey WA.

APPENDIX G: DRAFT FINDING OF NO SIGNIFICANT IMPACT AND STATEMENT OF FINDINGS

CENWS-PM-EC

DRAFT
FINDING OF NO SIGNIFICANT IMPACT
AND
CLEAN WATER ACT SECTION 404 STATEMENT OF FINDINGS
Westhaven Cove Small Boat Basin Maintenance Dredging and Disposal, 2018 to 2027
Westport, Grays Harbor County, Washington

1. **Name of Waterway:** Westhaven Cove Small Boat Basin, Grays Harbor

2. **Background**. USACE is undertaking the following project under the Rivers and Harbors Act on 30 June 1948 ((Pub. Law 80-858, 80th Congress, 2nd Session) which authorized breakwater facilities enclosing the Westhaven Cove Small Boat Basin. Once the Port of Grays Harbor completed construction of the initial (northwest) entrance channel and the first component of berthing facilities within the boat basin in 1952, the United States assumed thereafter the obligation to maintain that 100-foot-wide entrance channel to a depth of -16 feet MLLW. Under the authority of Section 107 of the Rivers and Harbors Act of 1960 (Pub. Law 86-695, 86th Congress, 2nd Session), as amended, in 1979 the Corps constructed a second (southeast) entrance channel, a central access channel within the boat basin, and a turning basin, along with additional improvements to the breakwater facilities. All channel segments and the turning basin footprint are maintained to an authorized depth of -16 feet MLLW.

Westhaven Cove Small Boat Basin is used by the local fishing fleets, recreational vessels, and the USCG station for navigation and moorage. Shoaling is occurring in the marina and dredging is necessary to restore the area to its authorized depth of -16 feet MLLW, with an allowance for an additional two feet of over depth. The purpose of dredging is to maintain authorized depths at the two entrance channels, access channel, and turning basin of the Westhaven Cove Small Boat Basin for the safe transit of vessels.

3. **Action**. USACE will dredge up to 75,000 cubic yards (cy) of material per dredge event from the basin and dispose of it at two open water disposal sites over a ten-year period. Dredging will be done with a clamshell dredge during the designated work window of 16 July through 31 January. All dredging will occur within the federally authorized footprint for the two entrance channels, boat slip access channel, and turning basin. The material has been determined suitable for open water disposal and would be transported to the Point Chehalis and South Jetty sites via barge and tugboat.

Coordination: The dredging is described in the following document, which is being publicly circulated and is hereby incorporated by reference:

- Final Environmental Assessment (EA): Maintenance Dredging and Disposal, Westhaven Cove Small Boat Basin, dated July 2017

a. Letters of Comment and Responses

A public comment period on the Draft EA, the contents of which are consistent with a CWA Section 404 Public Notice, is taking place from July 13 to August 12, 2017.

b. Federal Agencies

The United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, and the U.S. Fish and Wildlife Service (USFWS) are responsible for the Endangered Species Act of 1973 (ESA) listed species in Grays Harbor. The project requires work below Mean Higher High Water (MHHW), and due to the possibility of water quality impacts from elevated turbidity the USACE has determined that the dredging may affect, but is not likely to adversely affect bull trout, Chinook, chum salmon, green sturgeon, eulachon, southern resident killer whale, and marbled murrelet. The project may affect, but is not likely to adversely affect critical habitat for bull trout, green sturgeon, and southern resident killer whale and would have no effect on the critical habitat of the other listed species.

USACE has determined that the proposed action is not likely adversely affect Essential Fish Habitat (EFH) because of the highly modified state of the marina, work occurring during the designated fish window, the infrequency of dredging events in this area, and the rapid recolonization of benthic habitats post-dredging. The following conservation measures will be incorporated into the proposed action in order to reduce potential impacts to EFH:

- The project will comply with applicable provisions issued in Ecology's Section 401 water quality certification associated with the discharge of dredged material into the waters of the U.S., to minimize turbidity and other water quality impacts;
- Only previously disturbed areas will be affected by the proposed action; the dredging will only occur within the authorized footprint;
- The USACE will limit work to the established in water work window of July 16 through January 31.

A biological assessment (BA) was submitted to NMFS and the USFWS by the USACE for the dredging and consultation regarding Endangered Species Act and Essential Fish Habitat will be complete upon the finalization of the Environmental Assessment (EA)/Finding of No Significant Impact (FONSI)/Statement of Findings (SOF). The USACE also prepared a Biological Assessment in accordance with the Endangered Species Act for the placement of materials at the Point Chehalis and South Jetty sites. The NMFS and USFWS issued concurrence letters in December 2015 with a conclusion of "may effect, not likely to adversely affect" ESA listed species.

c. State and Local Agencies

(1) USACE is seeking a 401 Water Quality Certification from the Washington Department of Ecology and will comply with applicable conditions associated with the discharge

of dredged material into the waters of the U.S. This coordination will be concluded prior to the finalization of this FONSI.

(2) USACE has determined that the proposed project is consistent to the maximum extent practicable with the enforceable policies of the approved Washington State (State) Coastal Zone Management Program, particularly the City of Westport's Shoreline Master Program, and the Grays Harbor County Shoreline Master Program. USACE has prepared a Coastal Zone Consistency Determination and has submitted it to the Washington Department of Ecology. Completion of consistency coordination is pending.

(3) USACE has determined that there will be no historic properties affected for the Westhaven Cove Small Boat Basin Dredging. Letters were sent on January 29th, 2016 to the Washington SHPO detailing the project and defining the area of potential effect (APE). In a letter dated February 8, 2016 the Washington SHPO concurred with the APE. Tribal knowledge and concerns letters were sent on January 29th, 2016 to the Quinault Nation, the Hoh Indian Tribe, the Shoalwater Bay Indian Tribe and the Chehalis Indian Tribe. No response was received. On August 8, 2016, letters were sent to the Washington SHPO and aforementioned Tribes documenting the Corps determination of no historic properties affected. The Washington SHPO responded by letter dated August 16, 2016 and concurred with the determination of No Historic Properties affected. No response was received from the aforementioned Tribes.

d. Treaty Tribes

The project is adjacent to Westport and will require work below mean higher high water (MHHW). This activity will minimally interfere with fish activities of the Quinault Indian Nation (QIN). Maintenance dredging of the basin will help provide access to moorage for the Tribe's fishing vessels. The Tribe was contacted regarding the project and USACE will continue to coordinate throughout the project with the QIN in furtherance of meeting Tribal Treaty obligations.

5. Environmental Effects and Impacts:

a. Summary of Effects

The Draft EA for the Westhaven Cove Small Boat Basin Maintenance Dredging and Disposal Project 2018-2027, dated July 2017, describes the effects of the proposed project. Unavoidable adverse effects include disruption of benthic communities and minor and temporary water quality impacts through turbidity and depressed dissolved oxygen, as well as minor emissions of air pollutants and greenhouse gases. However, these effects will be temporary and localized and are not expected to be significant.

b. Compliance with Applicable Environmental Laws

- CWA, Sections 404 and 401: USACE prepared a 404(b)(1) evaluation to document findings regarding this project pursuant to Section 404 of the Act, attached as Appendix C of the EA, and prepared a 404 public notice for public comment. The USACE is seeking a 401 Water Quality Certification from the Washington Department of Ecology and will comply with all applicable requirements and conditions associated with the discharge of dredged material into waters of the U.S.

- CZMA: The USACE prepared a coastal zone consistency determination and has submitted it to the Washington Department of Ecology.
- National Environmental Policy Act: The USACE prepared a Draft Environmental Assessment with a public comment period.
- ESA: The USACE submitted a Combined Project Biological Assessment for maintenance dredging, of which this dredging action will be one component, to NMFS and USFWS. ESA consultation will be complete upon the finalization of this SOF/FONSI. Consultation has been concluded on transportation of dredged material to, and placement at, the multi-user aquatic disposal sites including the Point Chehalis and South Jetty sites.
- Magnuson-Stevens Fishery Conservation and Management Act: An EFH determination for the maintenance dredging of the Westhaven Cove Small Boat Basin was included in the Combined Project Biological Assessment for maintenance dredging activities submitted to NMFS. The USACE has determined that maintenance dredging may adversely affect EFH for the entire maintenance dredging program, including Westhaven Cove, because removal of dredged material would constitute a detectable adverse effect to EFH. EFH coordination for disposal at the Point Chehalis and South Jetty multi-user aquatic sites was previously concluded.
- Clean Air Act: Maintenance dredging and disposal activities under this project will result in emissions that are clearly *de minimis* and will constitute maintenance dredging where no new depths are required and no new disposal sites are designated, so the project is exempt from any requirement to conform to a State Implementation Plan under 40 CFR 93.153 (c)(2)(ix).
- Marine Mammal Protection Act: USACE has determined that the project would not be anticipated to disturb any marine mammal to the extent of causing disruption to behavioral patterns, and that it is thus not necessary to pursue an incidental harassment authorization under the MMPA.
- National Historic Preservation Act: USACE has consulted with the Washington State Historic Preservation Office (SHPO) and the Quinault Nation, the Hoh Indian Tribe, the Shoalwater Bay Indian Tribe and the Chehalis Indian Tribe. In a letter dated February 8, 2016 the Washington SHPO concurred with the APE. Tribal knowledge and concerns letters were sent on January 29th, 2016 to the Quinault Nation, the Hoh Indian Tribe, the Shoalwater Bay Indian Tribe and the Chehalis Indian Tribe. No response was received. On August 8, 2016, letters were sent to the Washington SHPO and aforementioned Tribes documenting the Corps determination of no historic properties affected. The Washington SHPO responded by letter dated August 16, 2016 and concurred with the determination of No Historic Properties affected. No response was received from the aforementioned Tribes.
- Tribal Treaty Fishing Rights: There are no adjudicated usual and accustomed fishing areas within the boat basin proper that would be directly affected by the dredging process. The Quinault Tribe does have their fishing fleet in Westhaven Cove, and would therefore benefit from the proposed action.
- Executive Order 12898, Environmental Justice: Maintenance dredging in the Westhaven Cove Small Boat Basin and associated aquatic disposal in dispersive sites is not expected to result in any disproportionate adverse environmental effects or impacts on the health of tribal members, or other minority/low-income populations.

6. Determination:

a. Alternatives

Three alternatives were considered in the draft EA for the Westhaven Cove Small Boat Basin Maintenance Dredging and Disposal FY 2018-2027, dated July 2017: (1) no action, (2) dredging with a clamshell dredge, and (3) dredging with a hydraulic dredge.

USACE rejected Alternative 1 because it would not meet the purpose and need of maintaining the channels of the Westhaven Cove Small Boat Basin at the authorized depth. Alternative 2 was selected because it is the least-cost and environmentally responsible alternative that meets the project purpose.

b. Individual and Cumulative Environmental Effects

Based on the analysis presented in the Draft EA, the additional incremental effect of the preferred alternative beyond the already accumulated degradation of the industrial harbor is insignificant. No significant adverse effects on recreation, aesthetics, or the economy are anticipated. USACE has determined that there would be no significant adverse effects to aquatic ecosystem functions and values.

3. Summary of Impacts and Compliance. Impacts of the proposed work will be minor, short-term, and temporary. This project complies with the Endangered Species Act: a biological assessment addressing the dredging activity has been prepared and was transmitted to National Marine Fisheries Service and the U.S. Fish and Wildlife Service; USACE made a preliminary determination of "may affect, but not likely to adversely affect" ESA listed species in the project area. Impacts to ESA listed fish and their prey will be minimized by dredging during the in-water work window of 16 July to 31 January. Consultation has been concluded on transportation of dredged material to, and placement at, multi-user aquatic disposal sites including the Point Chehalis and South Jetty sites. USACE has determined that it is not necessary to pursue a permit under the Marine Mammal Protection Act for noise impacts to harbor seals and California sea lions for the following reasons: 1) the dredge bucket hitting the soft substrate is not likely to exceed established noise thresholds, and 2) animals in the project vicinity are likely acclimated to noise generated by regular boat traffic in the marina and can avoid the area during periods of elevated noise. This project will comply with Sections 401 and 404 of the Clean Water Act. A 404(b)(1) analysis has been prepared, and the USACE will seek a Water Quality Certification and a consistency determination under the Coastal Zone Management Act from the Washington Department of Ecology. The project complies with the National Historic Preservation Act and the USACE has coordinated the work with the Washington State Historic Preservation Office (SHPO) and the Chehalis, Hoh, Quinault and Shoalwater Bay Tribes.

4. District Engineer's Findings and Conclusions.

I have evaluated the dredging and disposal activity in light of the public interest factors prescribed in 33 CFR 336.1(c). The following factors were evaluated as considerations potentially impacting the quality of the human environment in the accompanying EA and coastal

zone consistency evaluation: navigation and the Federal standard, water quality, coastal zone consistency, wetlands, endangered species, historic resources, scenic values, recreational values, fish and wildlife, and application of non-Federal land use policies. No additional impacts to state/regional/local land use classifications, determinations, and/or policies are anticipated as the project will maintain a federally authorized boat basin that is already used for vessel moorage. In accordance with 33 CFR 337.1(a)(14) and 325.3(c)(1), the following additional relevant factors were also considered: conservation, economics, shoreline erosion and accretion, safety, and property ownership.

The selected alternative represents the least costly alternative, constituting the discharge of dredged or fill material into waters of the United States in the least costly manner and at the least costly and most practicable location, is consistent with sound engineering practices, and meets the environmental standards established by the Clean Water Act Section 404(b)(1) evaluation process. Execution of the selected alternative, following considerations of all applicable evaluation factors, is in the public interest.

The determination that the sediments to be dredged from the Westhaven Cove Small Boat Basin are suitable for unconfined aquatic disposal is due to expire in August 2019. Subsequent sampling and testing of material will be required to determine suitability in maintenance dredging episodes beyond August 2019, when the current suitability determination expires. In light of a long-standing record of determinations that material to be dredged from the authorized navigation channel was suitable, reached in 1998 and again in 2014, it is expected that subsequent testing after 2019 will again result in a determination of suitability for unconfined aquatic discharge. If the sediments to be dredged are not determined to be suitable, the accompanying EA will be re-evaluated and this FONSI amended as necessary prior to any subsequent maintenance dredging episodes involving the disposal of dredged material into waters of the U.S.

Furthermore, based on the attached environmental assessment, I have determined that the selected action will not have significant effects on the quality of the human environment and does not require preparation of an environmental impact statement.

_____ _____

Date

Mark Geraldi
Colonel, Corps of Engineers
District Commander